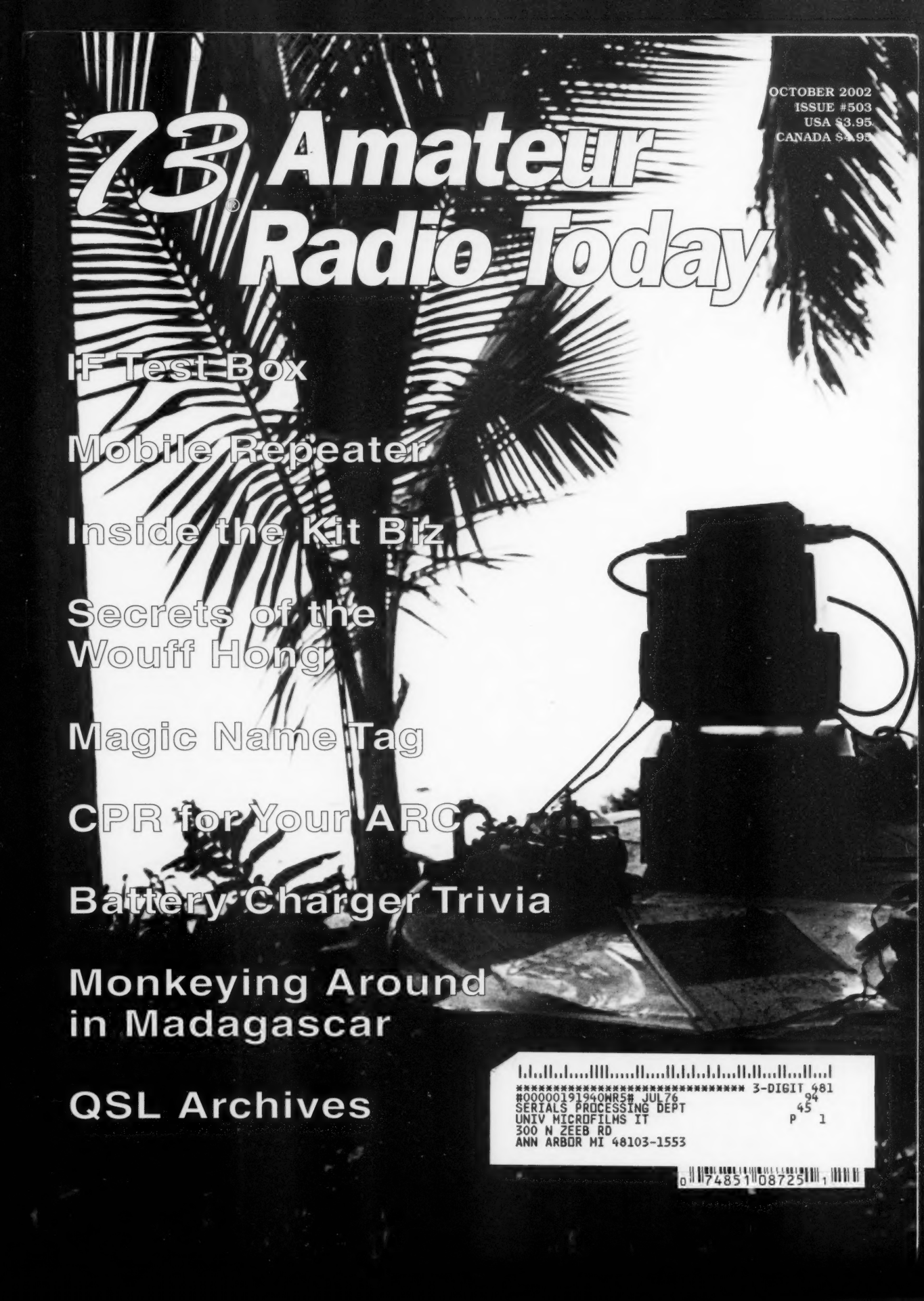

73® Amateur Radio Today

OCTOBER 2002
ISSUE #503
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IF Test Box

Mobile Repeater

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Magic Name Tag

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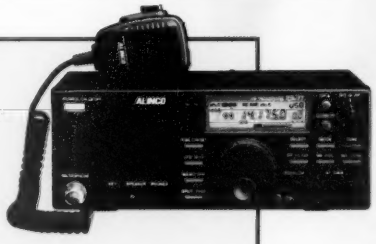

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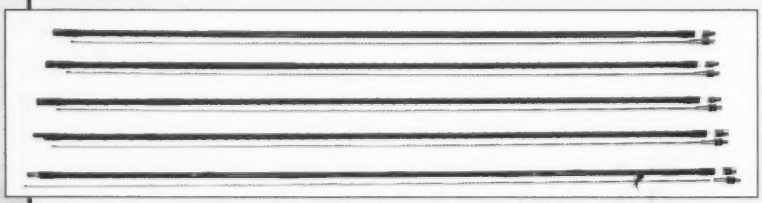

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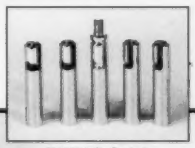

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ISSUE #503

73 Amateur Radio Today

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73 Amateur Radio Today Magazine
70 Hancock Rd.
Peterborough NH 03458-1107
603-924-0058
Fax: 603-924-8613

Reprints: $3 per article
Back issues: $5 each

Printed in the USA

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QRX . . .

Use the Correct E-mail Address

A couple from Minneapolis decided to go to Florida to thaw out during one icy winter. Since they both worked, it was decided that the husband would go first, while his wife would follow him in a day or two. Once in Florida, the husband decided to send his wife back in Minneapolis an E-mail via his laptop . He accidentally left off one letter in her E-mail and sent the note without correcting it.

A Houston TX widow had just returned from her husband's funeral. He was a minister and a heart attack had called him to Glory land. Upon arriving home she checked her E-mail, expecting messages from friends and relatives. Upon reading her first message, she fainted and fell to the floor. Her son rushed to his mother and saw the computer screen, which read:

To: My loving wife
From: Your departed husband
Subject: I've arrived

Continued on page 6

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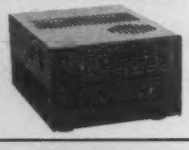

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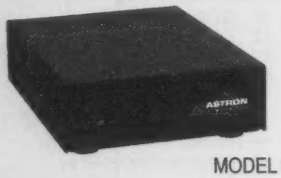

MODEL SS-18

DESKTOP SWITCHING POWER SUPPLIES

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SS-10	7	10	1⅛ x 6 x 9	3.2
SS-12	10	12	1⅝ x 6 x 9	3.4
SS-18	15	18	1⅝ x 6 x 9	3.6
SS-25	20	25	2⅞ x 7 x 9⅝	4.2
SS-30	25	30	3¼ x 7 x 9⅝	5.0

MODEL SS-25M

DESKTOP SWITCHING POWER SUPPLIES WITH VOLT AND AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SS-25M*	20	25	2⅞ x 7 x 9⅝	4.2
SS-30M*	25	30	3¼ x 7 x 9⅝	5.0

MODEL SRM-30

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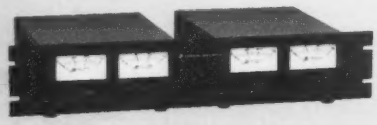
MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25	20	25	3½ x 19 x 9⅝	6.5
SRM-30	25	30	3½ x 19 x 9⅝	7.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M	20	25	3½ x 19 x 9⅝	6.5
SRM-30M	25	30	3½ x 19 x 9⅝	7.0



MODEL SRM-30M-2

2 ea SWITCHING POWER SUPPLIES ON ONE RACK PANEL

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25-2	20	25	3½ x 19 x 9⅝	10.5
SRM-30-2	25	30	3½ x 19 x 9⅝	11.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M-2	20	25	3½ x 19 x 9⅝	10.5
SRM-30M-2	25	30	3½ x 19 x 9⅝	11.0

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KENWOOD TK760, 762, 840, 860, 940, 941
KENWOOD TK760H, 762H
MOTOROLA LOW POWER SM50, SM120, & GTX
MOTOROLA HIGH POWER SM50, SM120, & GTX
MOTOROLA RADIUS & GM 300
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UNIDEN SMH1525, SMU4525
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SS-10GX, SS-12GX
SS-18GX
SS-12EFJ
SS-18EFJ
SS-10-EFJ-98, SS-12-EFJ-98, SS-18-EFJ-98
SS-12MC
SS-10MG, SS-12MG
SS-101F, SS-121F
SS-10TK
SS-12TK OR SS-18TK
SS-10SM/GTX
SS-10SM/GTX, SS-12SM/GTX, SS-18SM/GTX
SS-10RA
SS-12RA
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✓ 35W RF output, VSWR protected
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Whether your application is export or LPFM, the PX1 has you covered. From the over-rated continuous duty power supply & power amplifier to the 2 line vacuum fluorescent display, your station will be the easiest to setup and the most reliable for continuous operation. Full microprocessor controls provide a "virtual engineer". Check out www.highpowerfm for full details.

PX1	**35W Professional FM Stereo Transmitter**	**$1,795.95**

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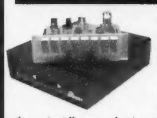

✓ New-built-in RJ11 phone jack
✓ Large memory holds over 500 numbers
✓ Big bold 8 digit display, auto insertion of dashes
✓ New-output latch jack

Dialed phone numbers on the radio, repeater codes, control codes, anywhere touch-tones are used, you can read and store them! All new design for 2002. Capture those tones with the TG2!

TG2	**Tone Grabber Tone Reader Kit**	**$59.95**
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✓ Visible and audible display of your heart rhythm
✓ Re-usable sensors included; just like visiting the hospital!
✓ Bright LED "beat" indicator
✓ Monitor output for oscilloscope display NEW!

Enjoy learning about the inner workings of the heart while covering the stage by stage electronic circuit theory of ECG/EKG systems. Be heart smart and learn at the same time!

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CECG	**Matching Case & Knob Set**	**$14.95**
AC125	**110 VAC Power Adapter**	**$9.95**
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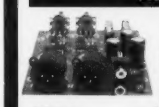

✓ Connect consumer outputs to XLR inputs
✓ Left & right audio gain adjustments

So you're trying to connect consumer audio outputs with RCA connectors (unbalanced) to XLR (balanced) inputs. Always a problem...Not anymore with the R2XL1!

R2XL1	**Unbalanced to Balanced Audio Converter Kit**	**$49.95**
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✓ All new design & features for 2002! NEW!
✓ Fully adjustable RF output

Our #1 kit for years has just gotten better for 2002! Totally redesigned, the FM25B has all the features you've asked for. From variable RF output, F connector RF output jack, line input, loop output, and more. Includes case, power supply, whip antenna, audio cables.

FM25B	**Synthesized FM Stereo Transmitter Kit**	**$129.95**

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✓ Color during the day, IR B&W at night!
✓ Automatically turns on IR Illumination!
✓ Waterproof to IP57 standards! NEW!
✓ Black anodized housing with universal mount

Best of both worlds! This video camera is a waterproof COLOR camera during the day. When the light level drops, it automatically changes to B&W and turns on its built-in IR illumination, with 10 IR LEDs. Powered by 12VDC and terminated with a professional BNC connector. B&W only model also available if color is not needed. Both in heavy anodized black housing.

CCD309	**Color/B&W IR Waterproof Bullet Camera**	**$169.95**
CCD308	**B&W IR Waterproof Bullet Camera**	**$109.95**
AC125	**110 VAC Power Adapter**	**$9.95**

MINI B&W CAMERA WITH IR ILLUMINATION

✓ Built in IR illumination!
✓ Sees in total darkness! NEW!

What a deal! This miniature B&W video camera has 6 high power IR LEDs built into it to provide illumination in total darkness! No need for external IR illuminators. Attractive black aluminum housing easily mounts at any angle with the built-in swivel bracket. Runs on 12VDC, and includes professional BNC output plug-in harness.

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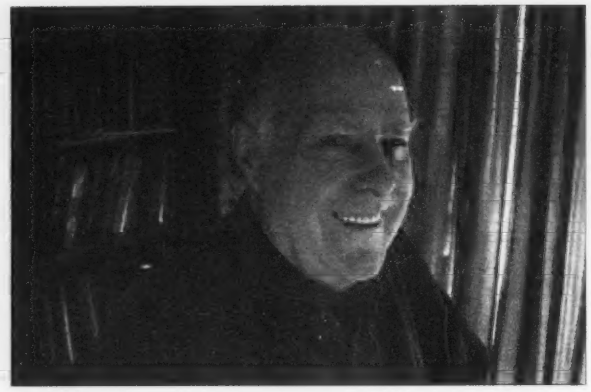

Wise Up & Beat the Odds

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Uh-Oh!

Hmm, the pieces of the puzzle are coming together, and the picture doesn't look good. Yeah, I know that Y2K deal fizzled, as did the 5/5/2000 planetary alignment alarm, so therefore there's probably no reason why you should worry about this Planet X ado.

Those of you who have not been drinking Coke from aluminum cans and thus gradually giving yourself Alzheimer's ... which, incidentally, was unknown a hundred years ago ... may recall my essay about Nostradamus predicting that the Earth's poles would be shifting around 2003 with the accompanying loss of about 97% of human life. This dire prediction was seconded by a similar Edgar Cayce prediction, plus another from well-known prophet Gordon Michael Scallion K1BWC. It's also rather close to the Inca calendar end in 2012. So maybe the Incas were off by nine years.

Charles Hapgood has also predicted a coming pole shift for Earth, something that seems to have been happening every 3,630 years. Einstein agreed with him on this. If you haven't read his *Maps of the Ancient Sea Kings,* you've missed something. He's a well-known and respected historian.

Then there's Zacharia Sitchin, an even better-known and respected historian, and his book about Nibiru, the name the Sumerians gave the 10th planet, which passes by Earth periodically and wipes the slate almost clean.

This has to do with the disappearance of Atlantis, Noah's flood, and other such mischief.

I got word of Planet X when I heard Mark Hazelwood on the Art Bell Show promoting his book, *Blindsided.* I tried for weeks to get a copy from Barnes and Noble. No good. Then Richard Mucci, who has a TV show in Pahrump NV and will be interviewing me for his show, sent me a copy. He'd had Mark on his show.

Okay, what would you do as a world leader if you got word that a huge disaster was coming that is expected to wipe out over 90% of your people? Would you let the media scare the hell out of everyone, totally destroying the country's financial and business structure? Or would you do everything possible to keep the news quiet?

Now, this Planet X has been spotted by several observatories. It's estimated to be about five times the size of Earth and have over a hundred times Earth's mass. It's a brown dwarf star which is moving between our sun and a dead star 50 million miles out, passing through our solar system every 3,630 years. Its mass has already been affecting the sun as well as Earth, giving us a huge increase in volcanic activity, weird weather, skewing our magnetic field, melting glaciers and ice packs. The sun has had the strangest sunspot activity in history, with huge flares arcing out into space ... fortunately, not in our direction. So far.

René discusses past pole shifts in his *Last Skeptic of Science,* citing the discovery of many mammoths frozen almost instantly, with tropical flowers still in their mouths. The shift could take just a few hours, throwing up mile-high waves which would wipe out all coastal cities. Ooops, there goes New York, Washington, all of Florida, Los Angeles, Tokyo, and so on around the world. There also goes all energy sources, probably for years. And all financial institutions. Money would be worthless. And there are those mountains of animal bones piled up around Alaska and Siberia, all killed by a long-ago massive wave.

The Earth's atmosphere would turn black from the erupting volcanoes, maybe for years, making it impossible to grow food.

When's Planet X due to pass between the Earth and the sun? May 2003, according to Hazelwood.

Oh, I almost forgot: Tree ring data also targets a growth stoppage for several years 3,630 years ago.

Two years ago Reuters released this news item: "Russia's Parliamentary leaders and President Putin agreed Wednesday to embark on a three-year crash course to thwart what they said was an anticipated chain of disasters due to hit the country in 2003. 'These are issues of extraordinary importance, strategic issues which may degenerate into a serious threat for the existence — I want to stress this — for the existence of Russia,' former Prime Minister Yevgeny Primakov told reporters." They're expecting a "massive population shrinkage."

So what could they be expecting might do that?

There's an interesting picture dated 1628 B.C. in *Discovering Archeology* of something larger than the sun passing over a town, with buildings falling down and people running around screaming. That's about 3,630 years ago, and it's a report on a worldwide catastrophe.

Well, we know there have been sudden pole shifts in the past, and that they caused massive extinctions. We just didn't know what was causing them.

How real is all this? Hazelwood makes a darned good case. Get a copy of the book and see what you think.

In the meanwhile, if you and your family are interested in trying to survive, it might be prudent to spend some time on preparation. You'll want to be on fairly high ground, back from the oceans, but not in the mountains, which could get pushed up or down as the tectonic plates suddenly get shuffled around.

Since money won't have any value, start thinking in terms of what would have value for swapping. You'll sure want to have a good working ham station, complete with emergency power ... maybe powered by wind or a bicycle, since gas and electricity aren't going to be available ... probably for years.

Or you can chalk the whole business up to Wayne being gullible.

Continued on page 59

Big Savings on Radio Scanners

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Mfg. suggested list price $529.95

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500 Channels • 10 banks • CTCSS/DCS • S Meter

Size: 7⅝" Wide x 6 15/16" Deep x 2 13/16" High

Frequency Coverage: 25.0000-512.0000 MHz., 806.000-823.9875MHz., 849.0125-868.9875 MHz., 894.0125-1300.000 MHz.

The Bearcat 780XLT has 500 channels and the widest frequency coverage of any Bearcat scanner ever. Packed with features such as Trunktracker III to cover EDACS, Motorola and EF Johnson systems, control channel only mode to allow you to automatically trunk certain systems by simply programming the control channel, S.A.M.E. weather alert, full-frequency display & backlit controls, built-in CTCSS/DCS to assign analog and digital subaudible tone codes to a specific frequency in memory, PC Control with RS232 port, Beep Alert, Record function, VFO control, menu-driven design, total channel control and much more. Our CEI package deal includes telescopic antenna, AC adapter, cigarette ligher cord, DC cord, mobile mounting bracket with screws, owner's manual, trunking frequency guide and one-year limited Uniden factory warranty. For maximum scanning enjoyment, order magnetic mount antenna part number ANTMMBNC for $29.95; The BC780XLT comes with AC adapter, telescopic antenna, owner's manual and one year limited Uniden warranty. Not compatible with AGEIS, ASTRO or ESAS systems. For fastest delivery, order on-line at www.usascan.com.

Bearcat® 895XLT Trunk Tracker

Mfg. suggested list price $499.95

Less -$320 Instant Rebate / Special $179.95

300 Channels • 10 banks • Built-in CTCSS • S Meter

Size: 10 1/2" Wide x 7 1/2" Deep x 3⅜" High

Frequency Coverage: 29.000-54.000 MHz., 108.000-174 MHz., 216.000-512.000 MHz., 806.000-823.995 MHz., 849.0125-868.995 MHz., 894.0125-956.000 MHz.

The Bearcat 895XLT is superb for intercepting trunked communications transmissions with features like TurboScan™ to search VHF channels at 100 steps per second. This base and mobile scanner is also ideal for intelligence professionals because it has a Signal Strength Meter, RS232C Port to allow computer-control of your scanner via optional hardware and 30 trunking channel indicator annunciators to show you real-time trunking activity for an entire trunking system. Other features include Auto Store - Automatically stores all active frequencies within the specified bank(s). Auto Recording - Lets you record channel activity from the scanner onto a tape recorder. CTCSS Tone Board (Continuous Tone Control Squelch System) allows the squelch to be broken during scanning only when a correct CTCSS tone is received. For maximum scanning enjoyment, order the following optional accessories: PS001 Cigarette lighter power cord for temporary operation from your vehicle's cigarette lighter $14.95; PS002 DC power cord - enables permanent operation from your vehicle's fuse box $14.95; MB001 Mobile mounting bracket $14.95; EX711 External speaker with mounting bracket & 10 feet of cable with plug attached $19.95. The BC895XLT comes with AC adapter, telescopic antenna, owner's manual and one year limited Uniden warranty. Not compatible with AGEIS, ASTRO, EDACS, ESAS or LTR systems.

Bearcat® 245XLT Trunk Tracker II

Mfg. suggested list price $429.95/**CEI price $189.95**

300 Channels • 10 banks • Trunk Scan and Scan Lists
Trunk Lockout • Trunk Delay • Cloning Capability
10 Priority Channels • Programmed Service Search
Size: 2 1/2" Wide x 1 3/4" Deep x 6" High

Frequency Coverage:
29.000-54,000 MHz., 108-174 MHz., 406-512 MHz., 806-823.995 MHz., 849.0125-868.995 MHz., 894.0125-956.000 MHz.

Our Bearcat TrunkTracker BC245XLT, is the world's first scanner designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS and EDACS® analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. Our scanner offers many new benefits such as Multi-Track - Track more than one trunking system at a time and scan conventional and trunked systems at the same time. 300 Channels - Program one frequency into each channel. 12 Bands, 10 Banks - Includes 12 bands, with Aircraft and 800 MHz. 10 banks with 30 channels each are useful for storing similar frequencies to maintain faster scanning cycles or for storing all the frequencies of a trunked system. Smart Scanner - Automatically program your BC245XLT with all the frequencies and trunking talk groups for your local area by accessing the Bearcat national database with your PC. If you do not have a PC simply use an external modem. Turbo Search - Increases the search speed to 300 steps per second when monitoring frequency bands with 5 KHz. steps. 10 Priority Channels - You can assign one priority channel in each bank. Assigning a priority channel allows you to keep track of activity on your most important channels while monitoring other channels for transmissions. Preprogrammed Service (SVC) Search - Allows you to toggle through preprogrammed police, fire/emergency, railroad, aircraft, marine, and weather frequencies. Unique Data Skip - Allows your scanner to skip unwanted data transmissions and reduces unwanted birdies. Memory Backup - If the battery completely discharges or if power is disconnected, the frequencies programmed in your scanner are retained in memory. Manual Channel Access - Go directly to any channel. LCD Back Light - An LCD light remains on for 15 seconds when the back light key is pressed. Autolight - Automatically turns the backlight on when your scanner stops on a transmission. Battery Save - In manual mode, the BC245XLT automatically reduces its power requirements to extend the battery's charge. Attenuator - Reduces the signal strength to help prevent signal overload. The BC245XLT also works as a conventional scanner. Now it's easy to continuously monitor many radio conversations even though the message is switching frequencies. The BC245XLT comes with AC adapter, one rechargeable long life ni-cad battery pack, belt clip, flexible rubber antenna, earphone, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. Not compatible with AGEIS, ASTRO, ESAS or LTR systems. Hear more action on your radio scanner today. Order on-line at www.usascan.com for quick delivery.

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Bearcat 278CLT 100 ch. AM/FM/SAME WX alert scanner	$159.95
Bearcat 245XLT 300 ch. Trunktracker II handheld scanner	$189.95
Bearcat 248CLT 50 ch. base AM/FM/weather alert scanner	$89.95
Bearcat Sportcat 200 alpha handheld sports scanner	$169.95
Bearcat Sportcat 180B handheld sports scanner	$149.95
Bearcat 80XLT 50 channel handheld scanner	$99.95
Bearcat 60XLT 30 channel handheld scanner	$74.95
Bearcat BCT7 information mobile scanner	$139.95
AOR AR8200 Mark II Wide Band handheld scanner	$539.95
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AOR8200 Mark IIB-A wideband handheld scanner/**SPECIAL $539.95**

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Frequency step programmable in multiples of 50 Hz.
Size: 2 1/2" Wide x 1 3/8" Deep x 6 1/8" High

Frequency Coverage:
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(Full coverage receivers available for export and FCC approved users.)

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QRX . . .

continued from page 1

I've just arrived and have been checked in. I see that everything has been prepared for your arrival tomorrow. Looking forward to seeing you then! Hope your journey is as uneventful as mine was.

P.S. It sure is hot down here!

Thanks to The Tuned Circuit, *via* The Modulator, *June 2002, Fort Myers (FL) ARC.*

Remember These?

Around the curve
The car was whizzen
The fault was hers
The funeral, hizzen!
****BURMA SHAVE****

Thanks to the June 2002 Modulator.

An Ode (Get It?) to a Tube

Your anode glows red, your cathode stays blue.
The greater your output, the brighter your hue.
Old friends, you and I, my trusty glass bottle;
You never once failed me when I pushed you full-throttle.
You bagged rare ones in pileups, each new one a thrill,
And lowered each winter's big heating oil bill.
With no filament delays — just instant, huge power —
I pity that aluminum on top of the tower!
You've such power out it keeps blowing the meter
(and the last time I tuned you, you burned up my feeder).
Your case was so hot the paint's all in blisters.
God bless vacuum tubes, just try this with transistors.
The bands are improving, there's "DXcitement" in store;
So hang in there Ol' Friend, for just one cycle more.

Thanks to Jim KF7E, Dick AF8X, and The Tuned Circuit, *via the June 2002* Modulator, *the news and views of the Fort Myers (FL) ARC, Inc.*

Personal Ad

The following appeared in a newspaper ...

"SBF (single, black female) seeks male companionship. Age and ethnicity unimportant. I'm a young, svelte, good-looking girl who loves to play. I love long walks, riding in your pickup, hunting, camping, fishing. I love cozy winter nights spent lying by the fire. Candlelight dinners will have me eating out of your hand. Rub me the right way and watch me respond. I'll be at the front door when you get home from work wearing only what nature gave me. Kiss me and I'm yours. Call 555-xxxx and ask for Daisy."

The number was for a Humane Society, and Daisy was an 8-week-old black Labrador retriever. They got 643 calls in two days.

Thanks to The Modulator, *June 2002, the news and views of the Fort Myers (FL) ARC, Inc.*

Young Ham of the Year 2002

Josh Abramowicz KB3GWY, of Reading, Pennsylvania, has been named the *Newsline* "Young Ham of the Year" for 2002. Josh is being honored for promoting amateur radio to young people through scouting programs. Amateur radio and scouting have always had a close relationship, with many of today's most successful scientists, engineers and professionals beginning their careers as both scouts and radio amateurs. This year, that relationship once again shines as the Amateur Radio Newsline, Inc.™, names the 17-year-old Eagle Scout as its "Young Ham of the Year" (YHOTY) award recipient.

According to ham radio operator and Award Administrator Bill Pasternak WA6ITF, Josh Abramowicz was chosen for this award by the Judging Committee based on his work in promoting amateur radio to other youngsters through the Boy Scouts of America. Abramowicz holds a General Class license and will be entering his senior year at Central Catholic High School in Reading, Pennsylvania, this fall. Josh says he became interested in ham radio because of his parents — he's part of a "ham family" — and the Boy Scouts. Josh's father, Mark, is NT3V and a News Reporter/Anchorman at KYW Radio in Philadelphia. His mother, Suzanna, holds the callsign NZ3G and is a retired teacher. Both hold Extra class licenses. He has three siblings: Amy who is 15 and studying for her amateur radio license, and two younger brothers — Jonathan, age 4, and Jordan, age 2.

Through his family, Josh had been exposed to amateur radio for many years, but it was not until he received an offer to serve on the K2BSA special event station staff at the Boy Scouts' National Jamboree at Fort A.P. Hill, VA., that the ham radio spark was fully ignited. To serve, Josh needed to be a licensed radio amateur. He quickly earned his Technician class license and began studying Morse code and theory for his General exam. His General class license arrived only days before his departure for the Jamboree, but once he arrived he wasted no time in putting it to good use. As a member of the K2BSA staff, Josh helped demonstrate ham radio to many of the 35,000 scouts attending the event, and to train some 400 scouts who earned Radio Merit Badges at the gathering.

Josh made an outstanding impression on leaders at the Jamboree. As a result of his demonstrated ability to connect with other scouts in attendance, he was selected to assist K2BSA in a scheduled contact with the International Space Station. Josh calls this one of the highlights of his experience at the Jamboree.

Back home, Josh was invited by Frankford Radio Club member Steve Dobbs NE3F to be part of a multi-single contest operation in the 2001 CQ World Wide DX Contest. After seeing Josh's comfort level with the radio, antennas and logging program, he turned Josh loose to operate by himself. Dobbs later invited Josh back to operate under his own call during the ARRL Sweepstakes.

But being on the air was not enough to satisfy Josh. He knew that the BSA Hawk Mountain Council camp has recently completed construction of a new science center. It already had a computer room, an astronomy lab and a room reserved for "Electricity and Communications" studies. But the communications room was bare, so Josh decided to help fill it with amateur radio.

He began by talking about establishing an amateur radio station in the Science Center, and met with several adult advisors at the camp to discuss his proposal. He also recruited scouts he knew from the Order of the Arrow (a BSA honor campers' society). Josh worked to get them licensed and into having ham radio fun. He was on his way to making this dream come true, but another step was needed: sponsorship of a Venture Crew.

According to Josh, a Venture Crew is a special scouting program for older teens, open to girls as well as boys. Each crew has a specific goal or mission. Josh presented his idea for a radio Venture Crew to the Frankford Radio Club and obtained its support as the sponsoring organization. He then convinced the Hawk Mountain Council leadership to use space in a new science center at its headquarters for a permanent amateur radio station. This station will soon be available to campers the year-round. Meanwhile, Josh continues to spread the word of amateur radio to all who will listen. As recently as the weekend of May 3–5, Josh continued his Venture Crew recruiting drive at the Appalachian District BSA Camporee in Kempton, Pennsylvania.

There he put scouts on the air including contact with a scout camp in Nottingham, England. Another ham contact to Idaho yielded a 50-minute on-the-air presentation to the scouts listening in. What makes this an amazing story is the time line: Josh is a relatively new ham who received his first license and original KB3GOG callsign in early 2001!

Congratulations to Josh, to the two runners-up — Evan Anderson KCØCWP, of Ashland, Nebraska, and Thomas Tenaglia K3TAT, who lives in West Chester, Pennsylvania — and to everyone involved in the YHOTY program.

Thanks to Newsline, *Bill Pasternak WA6ITF, editor.*

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"Great Spot" for News

Want to hear what's happening on the planet Jupiter? Just listen on the 15-meter band. So says *Popular Communications Magazine* in an article aptly titled "Listening to Jupiter on Your Shortwave Receiver."

No, you won't hear the latest scores from the Jupiter Red Sox playing the Mars Marlins. What can be heard is the natural sound of the orange giant. An electromagnetic wave is emitted at irregular intervals by Jupiter, with what the article describes as a sweeping, lighthouse-like sound.

All you need to listen in is a shortwave receiver that can tune the good old AM mode, and a decent antenna. Exactly how to listen and what to listen for is on pages 8 and 9 of the August issue of the magazine.

Thanks to PopComm, *via* Newsline, *Bill Pasternak WA6ITF, editor.*

News from the Ham's Hack

Former computer hacker Kevin Mitnick N6NHG has turned author. Mitnick is the California ham whose license renewal application was designated for hearing by the FCC. This, based on his conviction for hacking. And now, according to news reports, he has written a soon-to-be-released book on computer hacking and — more important — how to prevent being hacked.

According to the reports, Mitnick's book — The Art of Deception — is a novel that describes more than a dozen scenarios in which hackers dupe computer network administrators into divulging passwords, encryption keys, and other security details. Mitnick claims that it's all fiction, with any personal details having been kept out of the book, and that he uses fictitious names of hackers, victims, and companies.

Earlier this year the FCC designated his application to renew his amateur licenses for a public hearing. The FCC contends that Mitnick may no longer possess the requisite requirements to remain a Commission licensee.

Thanks to Bruce Tennant K6PZW, via Newsline, *Bill Pasternak WA6ITF, editor.* 73

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LETTERS

From the Ham Shack

Steve Brandt N7VS. Dear Wayne: Thank you for donating a one-year subscription to *73 Magazine* to be given away as a door prize at our 2002 Pacific Northwest DX Convention. The happy winner was Susan Huntley, wife of Roger Huntley W7VV.

We had almost 140 people attend our convention. Among the participants were Tom Schiller N6BT of Force 12 Antennas, who gave a talk on "Switched Vertical Dipole Arrays"; Al Maenchen AD6E, "TI9M DXpedition"; and Lew Sayre W7EW, "The South Atlantic VP8GO/VP8THU Trip." The convention went very smoothly, and we had only a few very minor glitches which we were able to easily fix. All were having a good time, and we received many nice compliments afterwards.

Again, thank you very much for donating a subscription to *73 Magazine*, and best wishes on your current endeavors.

Ray J. Howes G4OWY, Weymouth, Dorset, UK. Just received my June issue of *73*. As always, my first port of call is the "Letters" page. However, when I saw the letter from Bill Pasternak WA6ITF, I nearly fainted. For one horrible moment I thought I was reading an obituary! Phew, I wasn't! Mind you, knowing how Wayne just loves to chew his way through all those raw vegetables — I should have known better, right?

Anyway, I'm glad to find out that I'm not the only person to realize the fact that the appearance of Wayne Green on Art Bell's overnight talk show wasn't because he missed the limelight! No, on the contrary, it was merely a convenient vehicle to rescue *73* from impending doom. So I guess those of us who enjoy our monthly dose of *73 Magazine* owe Wayne a debt of thanks, and of course, to Art Bell W6OBB for helping out when Wayne was in his hour of "need."

On the subject of "kit suppliers" in the June editorial, what about Elecraft? Their excellent QRP K1 and K2 transceivers are streets ahead of the competition — hundreds have been built and all work first time too. It's as if Heathkit has risen from the ashes. Strangely, I've never seen an Elecraft ad in *73* — or a review of an Elecraft kit — unless I missed it. Hmmm? QRP is probably one of the most popular facets of amateur radio — yet, why isn't there a monthly column dedicated to it EVERY month? The other mags can do it. On the plus side, *73* is headed in the right direction now that it has more construction articles, etc. Long live *73!*

Thanks for the mention of Elecraft. I keep prodding the readers to pepper me with letters, or at least E-mail, about any ham product they think others ought to know about. And to tell me about any exciting adventures amateur radio has provided them. WQRP is a blast, and I've always made sure when on DXpeditions to listen right down to the nose for the weakest of signals. — Wayne.

Gary Auchard WBØMNA, Leavenworth KS. Wayne, you are always commenting in your editorials in *73 Magazine* on how little clubs/hams do to promote the hobby. Our club, the Pilot Knob Amateur Radio Club in Leavenworth, Kansas, is a good example of the exception to your comments.

We are a very active club with a lot of involvement in community activities. We have yearly classes for people interested in joining ham radio activities. We have a VE group that gives regular test sessions. We are active in emergency preparedness activities, and any event that will make us visible to the community. Our club has over 50 percent of the membership currently licensed as Extra Class with more achieving the top license at most every test session we conduct.

Our son and daughter are also licensed hams and have been for many years. I operate on HF, VHF, satellite, ATV, PSK31, packet, QRP, CW, and any mode that looks interesting. Building is one of my favorite pastimes. My wife and I have been licensed for over 25 years each. The hobby provides us with many hours of fun and is a great learning experience. We currently coordinate the VE testing sessions and always have a good turnout of people to test. Our last session we had 15 people show up. Not bad for a city of only 14,000 people. The interest is out there. You just may not be seeing it some times.

On another note, have you heard of "geocaching"? Briefly, it is a hobby using a GPS receiver to guide you to hidden caches of miscellaneous treasures people are hiding all over the world. These caches can be virtual caches like statues, and other permanent fixtures also. The bottom line is it gets you familiar with using a GPS receiver to find things hidden somewhere and, in a few cases, finding your way back to your vehicle. It's as much fun as fox hunting.

The ham radio part comes in when you're out in the woods and maybe get separated from your friends. If they don't have a GPS receiver with them, you can keep track of them via 2 meters if they are a ham. Of course, if you get hurt you could possibly call for help, too.

Check out this Web site for more info: [www.geocaching.com]. It's a lot of fun, and you learn a lot and get some great exercise in the process.

Thanks for reminding us, Gary. We first mentioned geocaching in our April 2001 issue. — J.B.

Lowell "Van" Slot W2DLT, the "Teletype guy" in NJ. Wayne, so glad I happened on your Web site, glad to see an "old" friend is still out there doin' things. I remember when you sat under a tree at our East Coast VHF Hamfest selling *73* number one at $.37 or "TWO FOR 73¢." Sure wish I had one of those original #1s — could probably retire …

Enjoyed my ads and the results they brought all the years in *73* with "deskfax" and Teletype stuff …

Enjoyed visiting Mount Monadnock with my new wife (on our honeymoon) and remember seeing a printing press in the front hall of your "mansion."

Many happy memories … loved your columns and talks at Dayton …

Incidentally, just last weekend I put up an inverted "V" at our lakehouse in Hemlock Farms, Lords Valley, PA, and got on 40m for the first time in almost 20 years with my Kenwood twins and worked about 10 states right off the bat. Guess the old "knack" doesn't leave you with age … I just turned 60 this year …

Anyway, hope you remember some of those memorable occasions I tried to share …

Les Linton, Tracy City TN. Wayne, because of your constant carping, I'm drinking freshly brewed green tea, distilled water (went out and bought my own distiller!), juicing, and eating salads for roughage. I've lost 47 lbs.

And I started walking when the weather improved enough to do so.

I just wanted you to know that if you can have that much effect on ME (!), imagine the effect you are probably (unknowingly) having on many others! So I HAVE stopped poisoning myself! Thanks, for many things … 73

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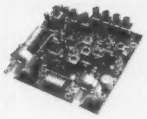

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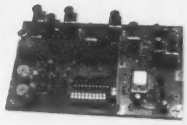

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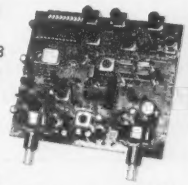

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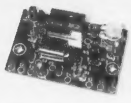

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IF Test Box

A real "can"-do project.

IF cans are difficult to hold and measure because of their size, etc. This unit enables the builder/experimenter to place the unknown "can" in a convenient holder to perform measurements, and has an oscillator circuit to experiment with. Easy and inexpensive, this is an excellent project for the home-brewer.

Have you ever tried to hold leads on the pins of a 10 mm IF "can" to take continuity or inductance measurements? It's not an easy task, even at the best of times. Building home-brew ham gear is my primary source of enjoyment, and the using of salvaged parts plays an important role in keeping costs down. The problem is that my junk box has an excess of salvaged "cans," and the values and winding information aren't known without making measurements.

Here's a weekend project that's not particularly difficult, won't cost very much for parts, and is quite useful when completed. The majority of the parts I used were from the proverbial "junk box," but I have included numbers from Radio Shack should you need them.

This unit will allow you the pleasure of "plugging in" an unknown IF "can" to make continuity and inductance checks without the hassle of holding the can in your fingers, etc. With power applied, an FET oscillator circuit is activated. The output is fed to an RF connector leading to your frequency counter for measurement. A multiposition selector switch will enable you to select various capacitors placed across the primary winding for experimentation. See **Photo A**.

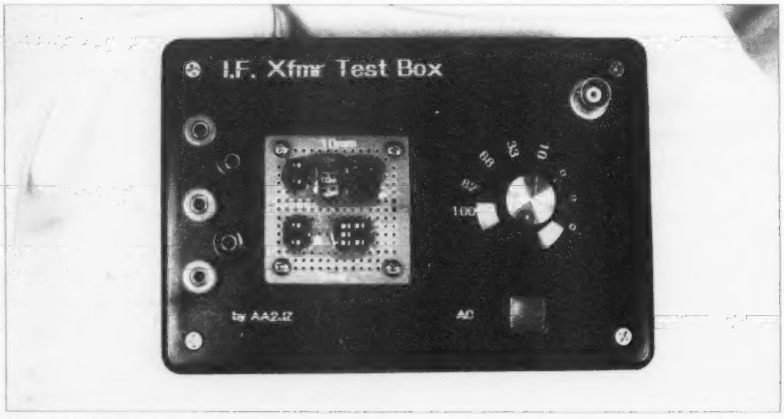

Photo A. *This IF Test Box utilizes mostly "junk box" components and a few added pieces of hardware. Take those unknown cans and just plug them in to check them out.*

Amateur radio QRP projects most often use IF cans in the 9 through 11 MHz range, of which 10.7 MHz is quite common. That's plus or minus a few hundred kilohertz. The oscillator section isn't intended to be a precision circuit, but will provide indication that the IF "can" inductor/capacitor combination is appropriate and will oscillate, thereby proving the parts are "good."

The first part of this project will be the construction of the "plug-in" circuit board and associated banana jack receptacles. After trying various DIP (dual inline package) sockets, I found that the secondary side of the transformers, the side having two pins, fit nicely across a 16-pin DIP socket. The primary side with its three pins isn't so agreeable. Here a little trial and error with SIP sockets proved to be the answer. The capacitors with the dotted lines marked "CX" represent capacitors you could plug into these locations, but are NOT hardwired to the board. See **Fig. 1**.

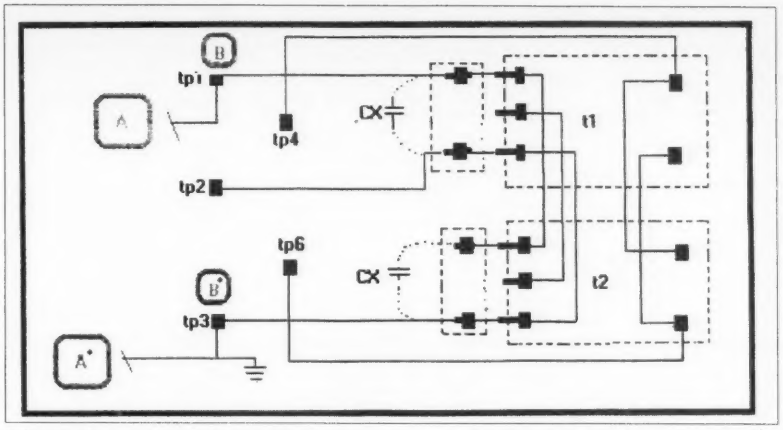

Fig. 1. Plug-in circuit board. TP 1 through 6 are RS 274-725 (2 packs); circuit board stock used HS 276-148 (1/2 used).

SIP sockets are intended to hold memory, etc., in some computers. Their "single inline package" makes them an easy candidate for separation. I cut the strip into several lengths and attached the first "hole" of each to a pin on the primary side of the transformer. Using the transformer with SIP parts attached as a guide, locate the appropriate holes in the circuit board and solder them in place. Once the location was found for the socket parts, I applied epoxy cement to all sides of the sockets to ensure a stable environment. Having extra parts of the 16-pin DIP socket remaining, I used two of them in parallel with the primary winding to allow insertion of capacitors for experimentation purposes.

Subminiature IF cans (8 mm) are also salvaged, so I included a socket to hold them. They conveniently fit the spacing of a 16 pin DIP socket and this was easy to include on the board. This socket was "bridged" to the 10 mm socket wiring.

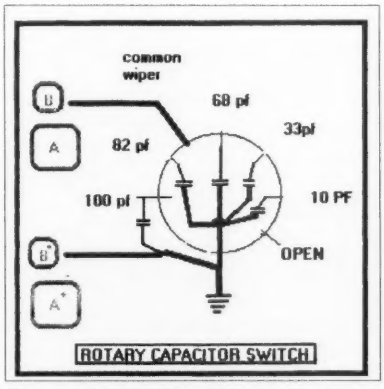

Fig. 2. RS 275-1385 switch or similar. Items marked A & A and B & B* are connected to both the oscillator board (**Fig. 4**) and the plug-in circuit board (**Fig. 1**). All NPO capacitors used.*

The "banana plug" jacks, red for primary and black for the secondary windings, were placed evenly on the surface of the project box. The surface of the project box was measured and cut to allow the underside of the circuit board to be exposed to the inside of the box. See the attached photos for clarification. I know what I mean, but sometimes pictures can show you better than I can tell you.

The rotary switch, with its NPO capacitors, were attached to the surface of the closure. The values of the capacitors are those I chose to use for experimentation. Your unit can include values you deem more appropriate for your circuits. I have found that the tuning capability of the transformer and using a capacitance value near that which is required will produce the desired result. See **Fig. 2**.

The next part of the project to be completed was the power supply. It's not an involved unit, just something to provide the 12 VDC needed to operate the FET oscillator. I used a salvaged LM317T regulator, bridge rectifier, and transformer. Almost any small transformer capable of 17 to 20 VAC or greater on the output side will suffice for this project. Physical size was of more importance than the output

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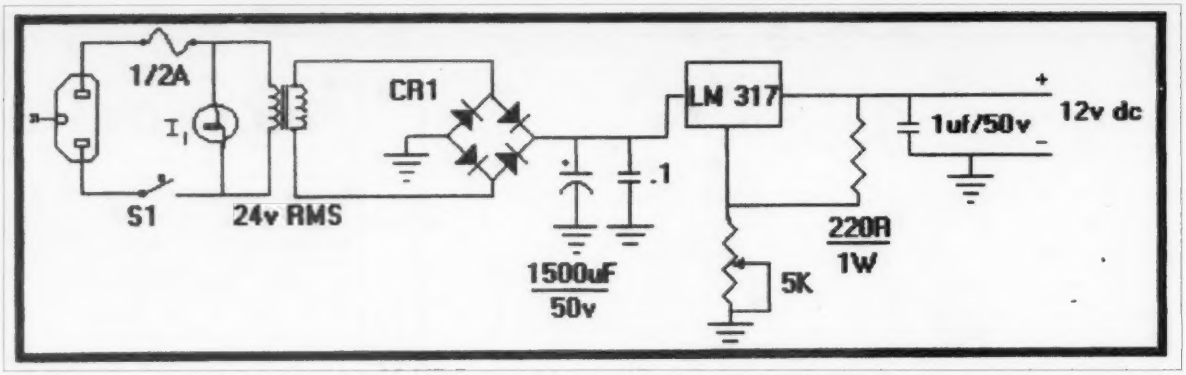

Fig. 3. Power supply, 12 VDC. I1 is RS 275-617a, S1 is RS 275-1565, T1 is equal to 273-1366, all other parts are from salvage.

voltage, as long as it is great enough for the regulator to provide 12 volts DC. See **Fig. 3**.

Fig. 4, an MPF102 FET oscillator with buffer and amplifier circuits, was assembled next. It took some experimentation to choose the correct capacitors for reliable oscillation. Reliable oscillation was achieved using a 22 pF coupling capacitor with two 43 pF silver mica units for the frequency-selective part. This variance from standard values for a 10.7 MHz circuit is likely due to the stray capacitance induced by the wiring, etc. Remember, this is an experimenter's box, not a high-tech measurement device.

Shielded cable was used for the connections from both the tank circuit and the output to the RF connector. This adds immeasurably to the stability of the circuit and shouldn't be ignored. **Photos B** and **C** show the location of the power supply strip to the left and the oscillator board to the right side of the closure. The oscillator on the right was necessary to provide clearance for the switch.

How to use the project after completion

This brings us to a point where what's in your "junk box" must be identified. First identify the windings on the primary and secondary sides of the transformer being tested. Plug the transformer into the appropriate location and check for continuity between pins one, two, and three of the primary side with a VOM. The secondary side, pins four and six (five isn't used), should also be a short circuit. The rotary capacitor switch should be set to an "OPEN" position.

Using an inductance meter, measure the value of inductance available from the circuit by tuning the slug from top to bottom. Make notes of these values for future reference. Lacking an inductance meter, the next best method of knowing what the values of the coil are is to place it in an oscillator circuit and measure the output.

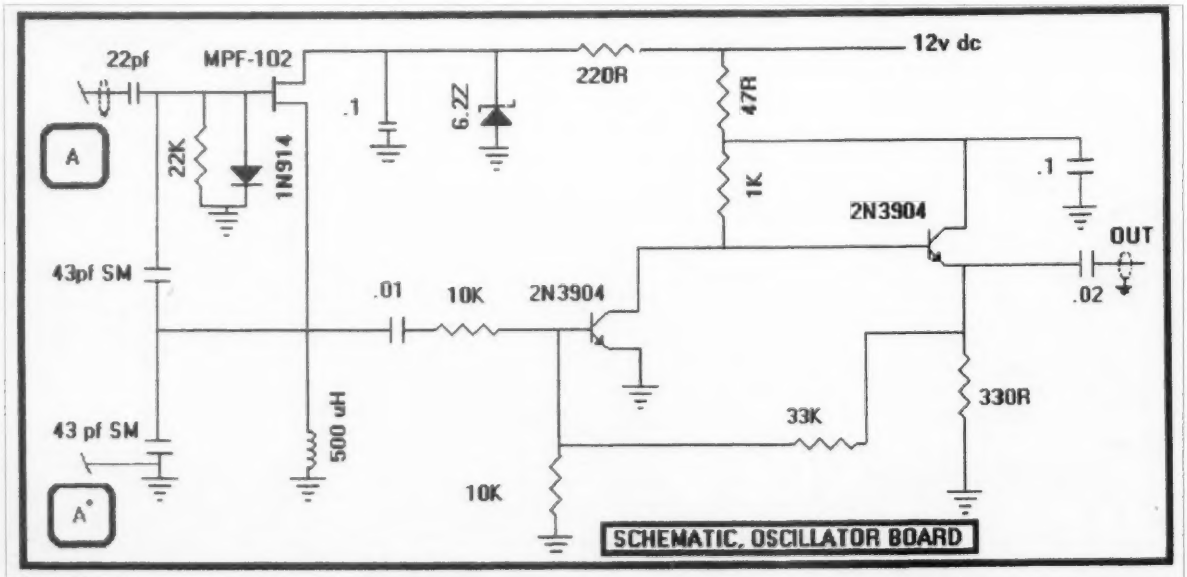

Fig. 4. Oscillator board. All resistors 1/4 W, SM = silver mica, 0.1 = 104, 0.01 = 103, 0.02 = 203 or 223. All parts were salvaged units. 2N3904 is NTE part number NTE-123; other substitution parts should work in this circuit.

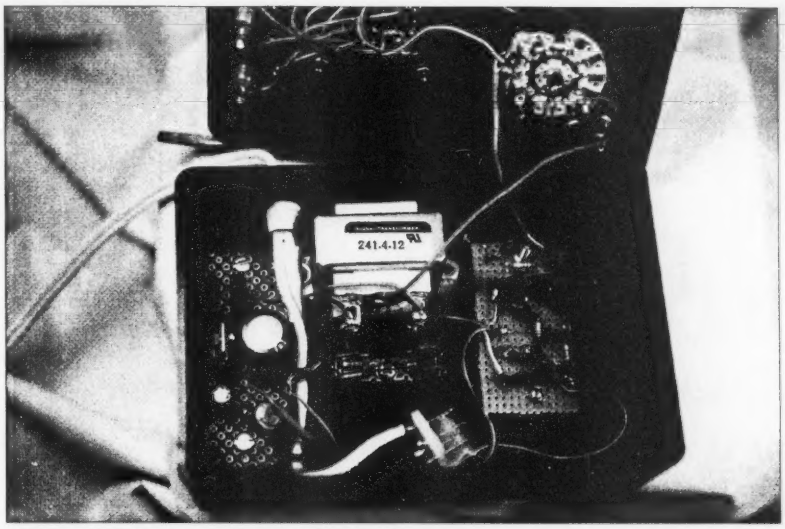

Photo B. *AA2JZ placed the oscillator board to the right to provide necessary clearance for the switch. The power supply strip is to the left.*

Remove your VOM leads from the test points, connect a suitable RF connection cable to your frequency counter and apply power to the set. If the transformer has the suitable inductance and has a capacitor of approximately 50 pF in parallel with it, there should be a reading near 10.7 MHz on your counter. If you suspect that the transformer you selected hasn't the required capacitor installed, rotate the capacitor select switch through each position while watching the frequency counter for a stable output.

IF cans specified in many projects are the 42IF123, and are 10.7 MHz tuned tanks, having a 50 pF capacitor in parallel with a 2 to 5 µH tuned coil. The secondary side has a single turn between pins 4 and 6, while the primary has 5 turns between 1 and 2, and 5 turns between 2 and 3. I have rewound many salvaged cans to the above specifications and have used them in projects where they performed well.

This is a project that isn't difficult to build, is useful, and offers builders the opportunity to reclaim salvaged parts.

Happy building! 73

Say you saw it in *73!*

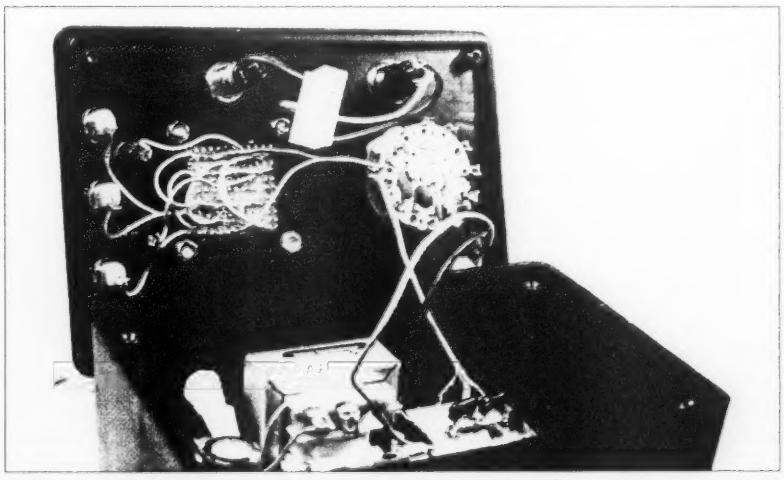

Photo C. *Inside the top.*

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Our ham club has an operating low-level 450 MHz repeater covering part of Los Angeles and surrounding cities. However, our club decided that during an emergency situation, a backup mobile repeater system would be desirable.

The conditions imposed required that the repeater would have to be portable to the extent that it would operate off of 12VDC and have an RF output power greater than 10 watts. The use of a controller module was deemed unimportant in this application. That means the repeater had to be capable of operating in almost any vehicle having an outside antenna.

After looking around swap meets for a suitable radio, we found a Pace Landmark 3 Series 450–512 MHz transceiver that appeared to be just what the doctor ordered, since it was designed to operate as a duplex radio for mobile applications. The physical size was just slightly larger than one of the older-style CB radios, making it convenient to handle physically. Because the radio was set up originally to operate in a commercial environment, long-term reliability was built into the unit.

Extended operating periods are typical for repeater operation, which makes the Pace radio ideal for our ham club application where short-term use is common. **Photo A** shows the completed repeater package shown in an inverted position. Rubber feet have been placed on the flat side of the duplexer that is used as a bottom. The repeater is intended to remain un-mounted so that it can be easily moved from one location to another.

The advantage of operating the radio inverted allows the RF power amplifier heat sink to be in the open allowing for free airflow. It was found that a cooling fan was not required. However, the heat sink would have to remain in the clear with the fins positioned vertically for best cooling.

Pace Landmark Series 3 radios came in two versions, one is the front mount as shown in **Photo A** and the other is the trunk mount as shown in **Photo B**. With the exception of the front panel, the two radios are identical.

To place the radio into a ham repeater application, several modifications were required, which will be outlined here. Modifications that I found necessary are as follows: (1) shifting the frequency from the commercial band into the ham band; (2) adding a CTCSS decoder; (3) modifying the audio path; (4) adding a small power relay for keying the transmitter; and (5) adding a duplexer.

Although the radio will function as a repeater while using two separate

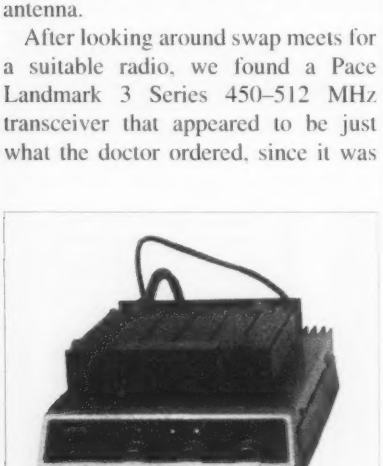

Photo A. *This is a picture of the completed portable repeater. A Telemobile Duplexer is mounted to the radio, allowing it to operate with one antenna.*

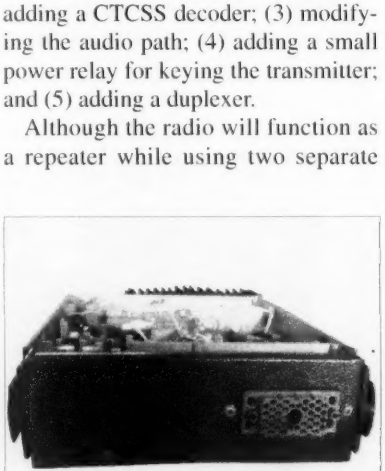

Photo B. *This is the trunk-mount version of the Pace Landmark 3 Series of duplex radios.*

antennas, for convenience a Telemobile Duplexer was added to allow the use of a single antenna. The use of the duplexer also helps reduce the desensing of the receiver as a result of having the transmitter close by and a –5 MHz split between the transmit and receive frequencies.

Also, we wanted modifications to the existing radio to be held to a minimum. In other words, add what's required without cutting up the original circuit.

To provide some insight into the makeup of the radio, **Fig. 1** shows the signal flow throughout. **Fig. 2** shows where the add-on circuits are connected, allowing the conversion from a duplex radio to a CTCSS-controlled repeater with the least amount of radio modification. **Fig. 3** shows the bottom side of the radio, the add-on connect points, and placement of the PTT relay. **Fig. 4** shows the top side of the radio, three connect points, and the location of the transmitter's critical tuning adjustment.

Frequency shift

As received, the radio was intended to be frequency-programmed using a pair of PROMs. Although nice, PROMs are not required to operate the radio, and shifting the frequency of the transceiver is reasonably easy to establish the new frequency. I tried two techniques as PROM substitutes and both methods work well. One method was to place two DIP switches on a small circuit board, and the other method was to install a pair of DIP headers. In either case, the respective programming code lines are allowed to float high while the remaining codes pins are grounded.

I made up the DIP switch circuit boards and included pull-up resistors for the code lines. I later determined that pull-up resistors were unnecessary since the synthesizer IC provides logic line pull-up. Without the pull-up resistors, the DIP pin headers work satisfactorily in programming the radio to the desired frequency.

My homemade circuit board using switches is shown in **Photos C** and **D**. **Photo C** shows the top side of the board and placement of the switches. **Photo D** shows the bottom side of the board where two 16-pin headers are mounted. The pin headers are aligned to mate with the PROM sockets located on the synthesizer board. Wiring is essentially pin-to-pin between the PROM socket and the switches. For the conversion, the switches provide a hard pull-down for a "0" logic code and the IC provides an internal pull-up for a logic "1".

The synthesizer used in the Pace Landmark radio is called a dual modulus frequency synthesizer, and it utilizes a Motorola MC145152 IC. **Photo E** shows the bottom side of the radio and the location of the synthesizer.

Although I'll not go into theory detail as to how the synthesizer operates, I will provide the key information required to shift the operating frequency to within the 440-450 MHz ham band. The synthesizer is divided into two

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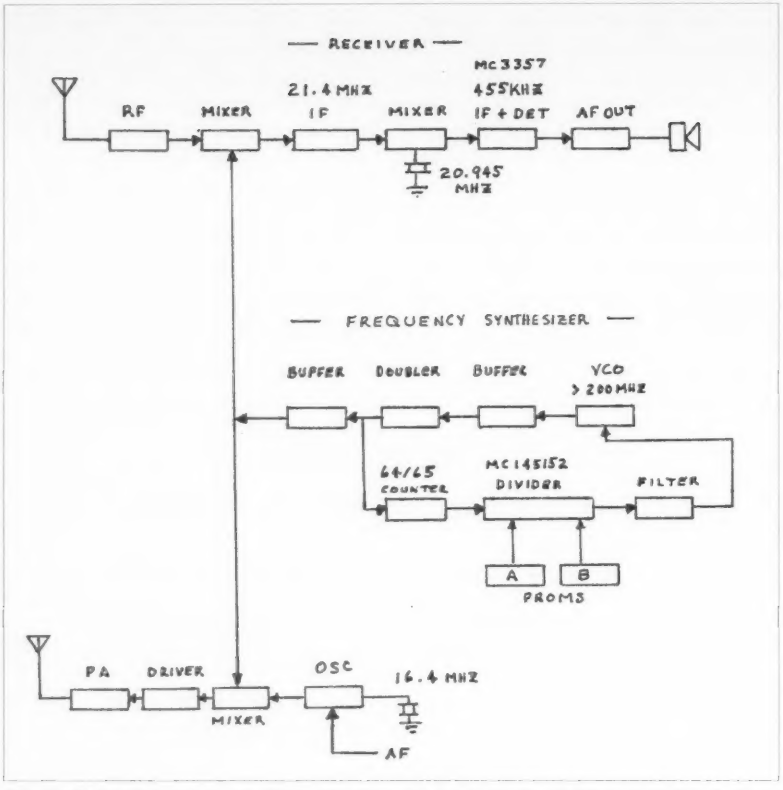

Fig. 1. This is a block and signal flow diagram of a Pace Landmark 3 Series duplex radio.

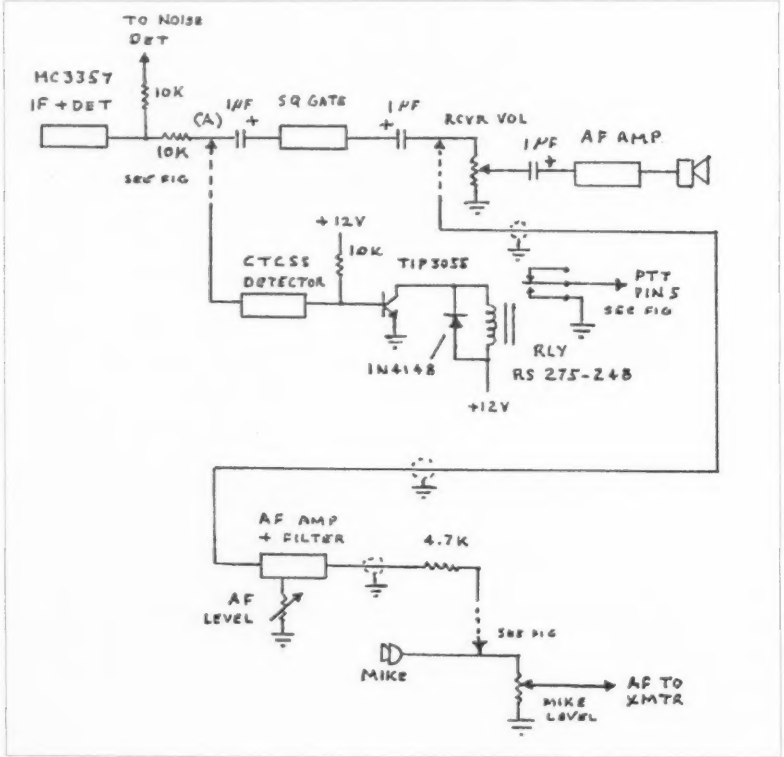

Fig. 2. The add-on circuits and where they are attached to convert the radio to a ham repeater.

parts that are designated as "A" and "B". Once "B" is set, then "A" is used to step through the band. For commercial operation, a step frequency of 12.5 kHz was used, and I chose to NOT make a change in that portion of the synthesizer's operation.

For use in the Los Angeles area, ham repeaters are set up to operate in 10 kHz steps, which translates to the Pace setting up, at many frequency settings, 5 kHz off of a desired repeater channel. Rather than change the synthesizer to accommodate a 5 kHz or 10 kHz step, I chose to fudge the final frequency.

By this, I mean that I set up the synthesizer to operate 5 kHz away from the desired channel frequency using the switches/DIP header and then tweaked the 6.4 MHz master oscillator crystal until the operating frequency moved over the desired 5 kHz and onto the repeater's desired channel frequency. The crystal frequency can be "rubbered" easily with the trimmer capacitor provided.

When in operation, the transmitter and receiver are separated in frequency by 5 MHz. After tweaking the oscillator, the step switches/DIP header will still set up the dual modulus synthesizer at 12.5 kHz steps. However, for our club's situation, having the repeater set up for operation on our assigned frequency was all that was required, making the DIP switch option unnecessary. Therefore, tweaking the master crystal frequency was the most expedient technique and required the least modification to the existing radio.

PROM substitute

Calculating the numbers to achieve a desired frequency is done through an iteration process using the equation shown in **Table 1**. As an example of how the process works, let me lead you through the steps.

The first step is to determine the desired transmit (channel) frequency that is to be used — let's use 449.425 MHz as an example. Using the equation, we need to find the number represented by "NT", where NT will be made up of two numbers. One number will be the "A" divider and the other will be the

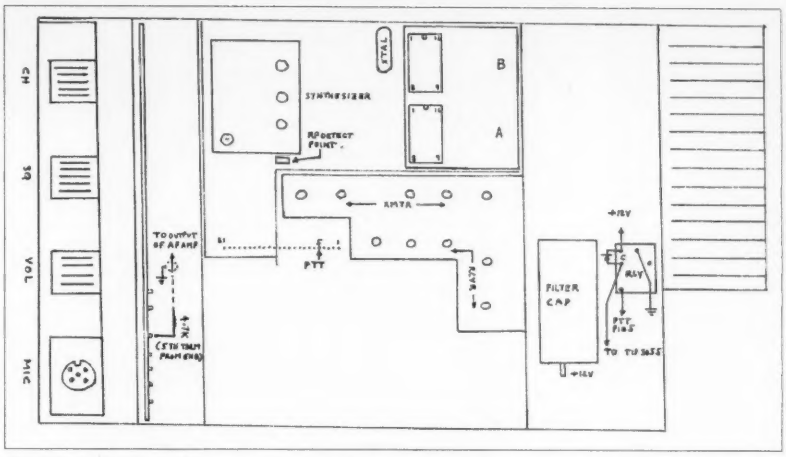

Fig. 3. The bottom side of the radio. Tuning adjustments and connect points are identified.

"B" divider. Plugging the selected frequency into the equation, we obtain an NT number equal to 37266. Now, here is where the iteration steps come into play to find the value of "A", since the next step is to subtract the value of "B".

Before continuing, let me discuss how the values of "A" and "B" are to be determined. The value of "B" will be a whole number between 0 and 64, and selecting a midnumber arbitrarily is typical as a starter. After selecting a number, it is subtracted from 37266, as in our example. The value of "A" must also be a whole number and, as the iteration process proceeds, the number value will follow the shape of a "U" curve, if plotted. What this means is that the value of "A", when not correct, will have a decimal remainder where the remainder will decrease as the "whole number" is approached. Or, the remainder will increase as you move away from the desired value.

Following that process, let's continue with the steps. Choose a whole number value for "B" and subtract it from 37266 to create a new number. Divide the new number by 64. If the "A" number is "whole," you made a good guess in the selection in the number for "B". In most cases, the new number will have a decimal remainder. Write down the number for reference. Then advance the selected value of "B" and repeat the process.

When the new number is calculated, compare the remainder of this remainder to the first one. If the remainder is

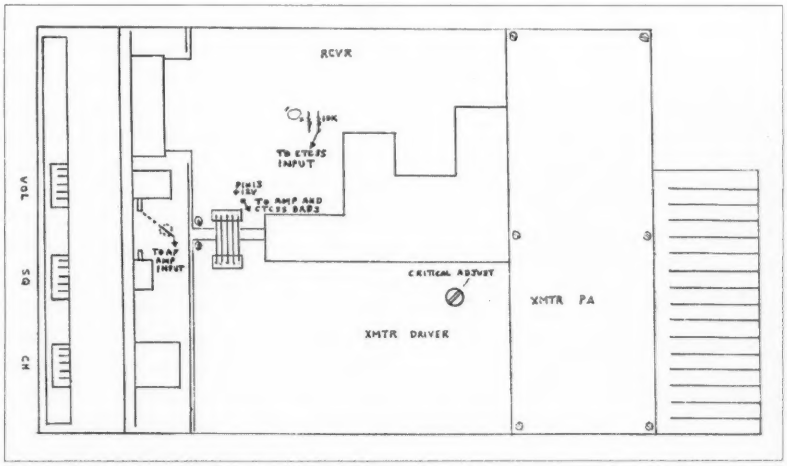

Fig. 4. This is the top side of the radio. Several connect points and the transmit driver critical adjustment are shown.

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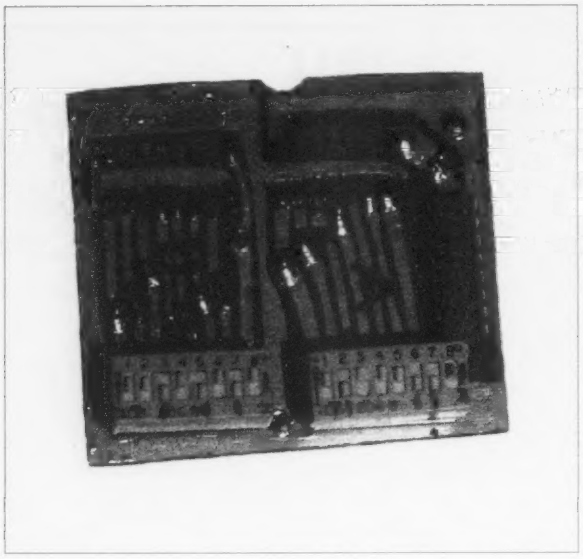

Photo C. *Top side of a switchable PROM substitute board that can be used to program the repeater's operating frequency.*

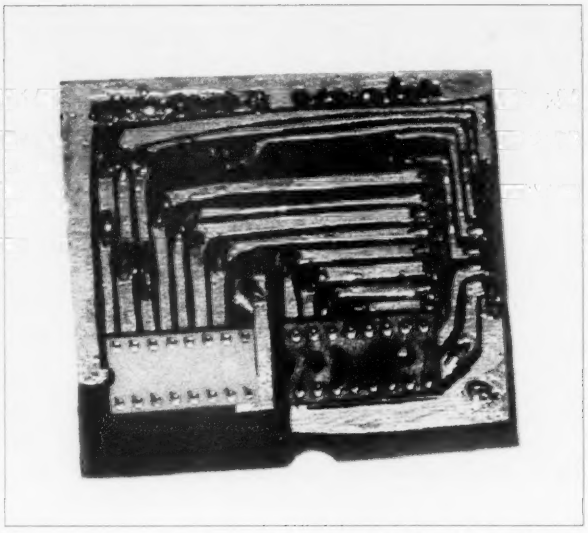

Photo D. *This is the bottom side of the PROM substitute board. "Z" wires are used to transfer circuits from one side to the other of the board.*

lower, then your selection of "B" is advancing in the correct direction. Select a new "B" value and repeat the process until the new number becomes "whole" without a remainder.

Using the iteration process in our example, the values for "A" and "B" came out as B = 18 and A = 582. Using the table shown in **Table 2**, we can determine which DIP header terminals are to be left open, with the others tied to ground. For the "B" header (which is closest to the casting wall), pins 2 and 5 are allowed to float setting up a divide code of 18. Pins 1, 3, 4, 6, and 9 are grounded.

DIP header "A" is set up to divide by 582, which is accomplished by allowing pin 7 of header "B" and pins, 2, 6, 7 of header "A" to float. Pins 1, 3, 4, 5, and 9 of header "A" are grounded.

After the DIP header has been programmed as in our example, the synthesizer will operate at 465.825 MHz, that is, 16.4 MHz above the selected channel frequency.

Tuning up the radio

Tuning the receiver and transmitter is very easy if an RF amplitude detector is used. Metering of the internal circuits to find resonance of individual circuits is really the most difficult approach, though feasible. I found an RF amplitude detector to be the easiest to use, and tuning up the radio could be accomplished in just a few minutes. The following is a listing of the preferred test equipment that is needed to tune up the radio: (1) tunable receiver with an "S"-meter and covering the frequency band of 440-470 MHz, or a spectrum analyzer covering the same frequency range; (2) a receiver or spectrum analyzer tunable to 21.4 MHz; (3) power output meter with a dummy load; and (4) a signal generator for the receiver's new input frequency.

Assuming that either a spectrum analyzer or a tunable receiver is available, the first step is to select a frequency equal to the synthesizer's output — in this case, 465.825 MHz. Place the detector probe near the output of the synthesizer. There are two white coaxial cables attached to the output point on the board (see **Fig. 3**). Decrease the probe's proximity distance to the coax cables until a signal is detected. With the presence of a signal at "465.825 MHz", tweak the synthesizer tuning adjustments to peak the RF output. Once peaked, the synthesizer tuning is complete and no further adjustments are required.

Tuning the receiver is equally as easy as doing the synthesizer. Use the following steps:

(1) Attach the RF detect probe

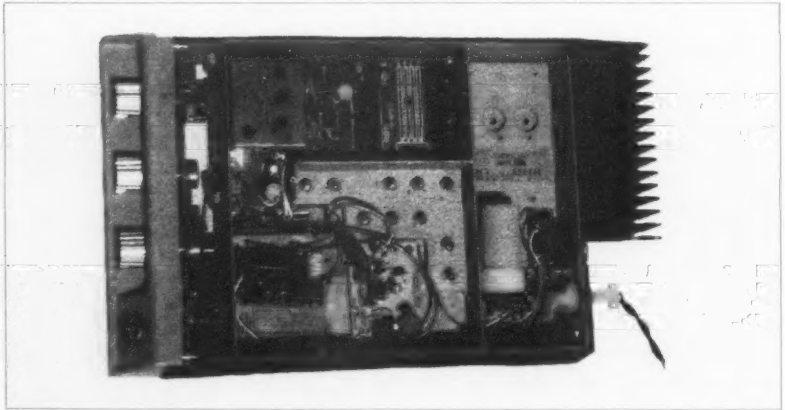

Photo E. *This is a picture of the bottom side of the radio. The synthesizer is located on the circuit board with the metal shield.*

$$NT = \frac{\text{XMT freq} + 16.4\text{mHz}}{0.0125} = (64xA) + B$$

Example:

XMT channel freq: 449.425mHz
Synthesizer freq: 465.825mHz

NT = 465.825/0.0125 = 37266

Choosing B=18:
37266 – 18 = 37248
A= 37248/64 = 582 (must be a whole number)

Results: B=18 and A=582

DIP header setup:

PROM	pin #	Divide by N	LOGIC	
"B"	2	16	HI	
"B"	5	2	HI	
"B"	1,3,4,6,9 8 Ground		GND	LO
"B"	7	512	HI	
"A"	2	64	HI	
"A"	6	4	HI	
"A"	7	2	HI	
"A"	1,3,4,5,9 8 Ground	GND	LO	

Table 1. *The equation used for determining the divide-by numbers for frequency programming the radio. In addition, an example is provided showing how the divide numbers are used to program a channel of operation.*

through a 0.01 µF capacitor to pin 16 of the MC3357 detector IC.

(2) Adjust the RF detector to 21.4 MHz.

(3) Connect a signal generator to the antenna connector of the receiver and adjust the generator's frequency to the receiver's channel frequency (5 MHz below the XMT channel frequency). Using our example, tune the generator to 444.425 MHz.

(4) Raise the RF output from the generator until a signal is detected by the RF probe/receiver.

(5) Adjust each of the receiver's five helical resonators, as shown in **Fig. 3**, to obtain a signal peak at 21.4 MHz.

(6) Reduce the generator's output signal level and perform a final peaking of the five adjustments.

(7) Tuning of the receiver is complete.

Tuning of the transmitter is equally as simple as doing the receiver, though there are more adjustments to make. During the adjustment of the transmitter, keying of the transmitter will be required using either the microphone's PTT button or by temporarily grounding pin 5 on the contact

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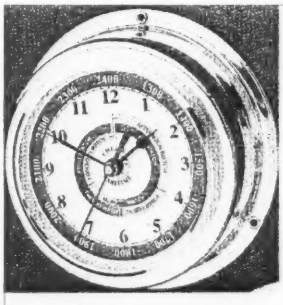

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PROM socket pin		N value
"B"	1	64
"	2	16
"	3	8
"	4	4
"	5	2
"B"	6	1
"B"	7	512
"	8,15	GND
"B"	9	256
"A"	1	128
"	2	64
"	3	32
"	4	16
"	5	8
"	6	4
"	7	2
"	8,15	GND
"A"	9	1

Table 2. The DIP socket binary divide-by-N values as a function of pin number. Note that socket "B" carries the 512 and 256 divide-by-N for the "A" PROM.

strip (see **Fig. 3**). Adjustments are made first using an RF receiver probe tuned to the transmitter's output frequency of 449.425 MHz, as in our example. Once power is detected and indicated on the power output meter, the receiver's RF probe may be removed. **Fig. 4** shows the top side of the radio and the location of the receiver and exciter boards. Here are the steps to follow:

(1) Attach the wattmeter and RF dummy load to the transmitter's RF connector.

(2) Position the RF probe to a location near the collector output of the RF power driver transistor.

(3) With power applied to the radio, key the transmitter.

(4) Position the RF probe to obtain a signal indication.

(5) Adjust each of the five XMTR tuning screws for a peak indication at the RF probe's receiver (see **Fig. 3**).

(6) On the exciter board, you'll note numerous ceramic trimmer capacitors. Adjust each to obtain a peak RF indication on the probe's receiver.

(7) Adjustment of one trimmer capacitor, shown in **Fig. 4**, is critically sensitive to tool capacitance. When this capacitor is adjusted, the transmitter's output power should be evident on the RF power meter.

(a) Peak the adjustment for maximum power output and take note of the signal level. Remove the tuning tool and release the PTT allowing the transmitter to recover.

(b) Key the transmitter and note the power output. If the power value is the same as it was when it was peaked (as in "a" above), then the adjustment is correct and complete. However, if the power is low, touching the tuning tool to the capacitor should restore the power to near maximum. If this occurs, increase the capacitance slightly to compensate for the tool capacitance. Repeat the above test after each minor adjustment, until the power out remains high.

(8) With power output shown on the power output indicator, peak all of the transmitter adjustments to achieve maximum RF output into the meter.

(9) All transmitter adjustments are complete.

Audio

Coupling audio from the receiver into the transmitter required a lot of experimentation on my part before I was satisfied that it was suitable. Three things came about requiring investigation during the process: (1) obtaining the correct pass-through AF level; (2) stopping RF feedback from creating an audio squeal; and (3) obtaining the correct de-emphasis. At this point I doubt that I've set up the correct de-emphasis time constant, but the resulting audio quality appears suitable for communications. Some additional work in the audio shaping is warranted, but may not happen in this club's repeater.

Stopping RF feedback and coupling audio created the greatest effort in the process in converting from commercial to ham repeater operation. The diagram shown in **Fig. 2** shows the audio path, CTCSS connection, and the keying relay. The objective of the new audio path as shown is to bypass the built-in audio output stage, allowing the original stage to be used for local monitoring of incoming signals, yet have it not interfere with the pass-through audio during repeater operation. Also, the local microphone is still usable by a local operator.

The normal de-emphasis within the radio is done within the audio amplifier circuit, making it necessary to create an alternate de-emphasis audio path for repeater audio. To achieve a small amount of amplification (a gain of approximately 20) in addition to creating de-emphasis, I used a cascade filter using an LM1458 IC as shown in **Fig. 5**. The circuit board that I used is shown in **Fig. 6**.

There are no special requirements for the board layout. What I did determine to be necessary was the use of shielded wire to carry the audio between the radio and the filter module. In the absence of small flexible shielded audio wire, RG-174 coax makes a desirable substitute. A TIP3055 power transistor was also mounted on the audio board for convenience. The purpose of the transistor is to "key" the PTT relay.

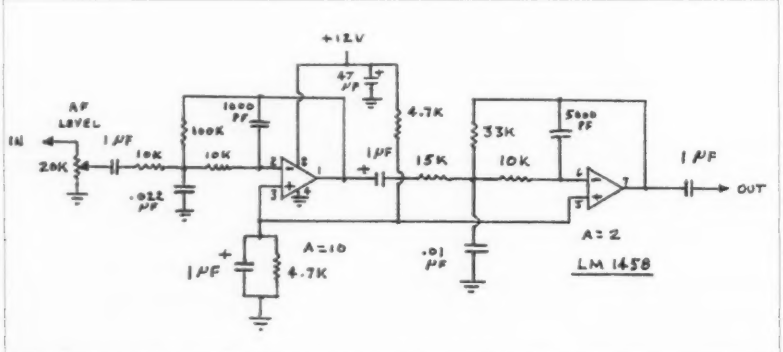

Fig. 5. This is the audio de-emphasis filter and amplifier that I used. A maximum gain of 20 was deemed satisfactory to drive the microphone input for repeater operation.

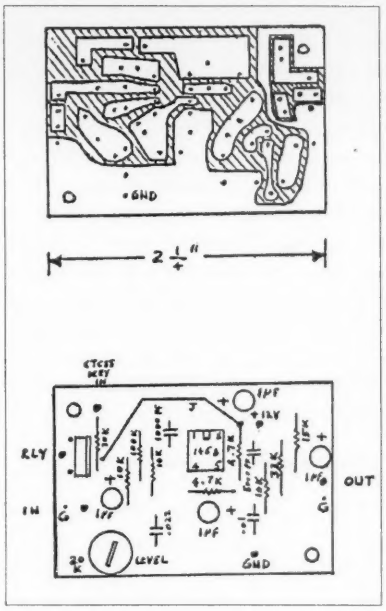

Fig. 6. This is the homemade circuit board for the audio filter, including the CTCSS keying transistor.

Output audio from the filter board is routed through a shielded wire up to the front panel and is connected as shown in **Fig. 3**. One end of a 4.7k resistor is soldered to the panel's appropriate solder pad, with the other end floating to become a tie point for the center conductor of the shielded wire. The shield is tied to ground on an adjacent panel ground pad.

Stopping the RF feedback into the audio was a little tricky. The problem was created by mounting the audio filter board on the opposite side cavity wall from the RF driver. With the chassis being an aluminum casting, magnetic energy passes through the casting from one side to the other. To reduce the feedback interference, I flattened a section of a steel soup can to obtain a flat piece of metal. Although not visible in the photos, the metal was formed to fit the filter board's shape so that magnetic energy penetrating the walls would be diverted away from the electronics of the filter board. So far that effort has paid off. Two fairly long self-tapping screws passing through metal standoffs were used to hold the filter board in place. The metal plate is down tight against the casting.

CTCSS

Mounting a CTCSS decoder board was probably the easiest to accomplish. Communication Specialists, Inc., provides a thick, double-sided tape for mounting the board in the casting cavity. Connections to the CTCSS board are made using push-on connectors, allowing the board to be mounted ahead of making the wire attachments. For convenience, the chart of switch settings for selecting the CTCSS frequency was glued to the casting alongside the CTCSS board, where it won't get lost.

Output from the CTCSS board is logic "high" whenever a CTCSS tone is received. To create a keying function as a result of the logic high, a TIP3055

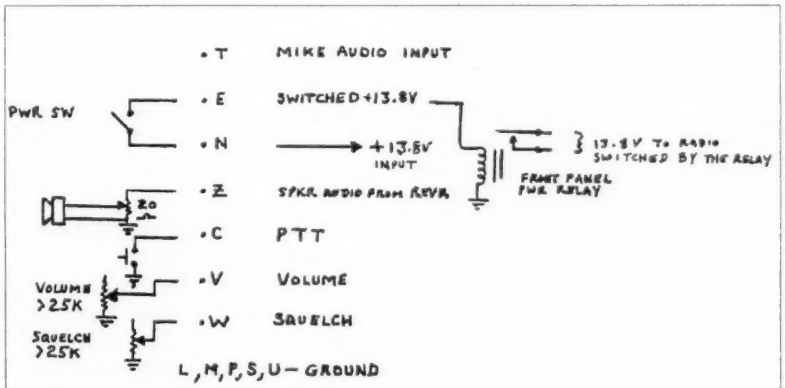

Fig. 7. The front panel connector pin letters used on the trunk-mount version of the Pace Landmark 3 Series radios. Items associated with the control head are shown left of the connector, and internal functions are shown on the right.

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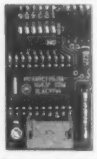

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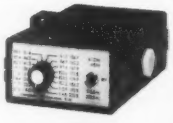

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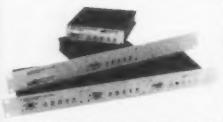

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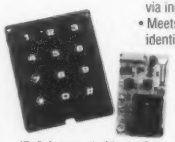

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transistor (most any NPN TO-220 device will work) is used to key a transmit relay. The keying relay is visible in **Photo E** and shown in **Fig. 3**, where it is placed near the large electrolytic filter capacitor toward the rear of the radio. A dab of contact cement was used to attach the relay to the casting. A ground connection for the relay was obtained by routing a short wire over to the ground lug on the receiver's antenna connector. Openings in the casting allow connecting wires to be routed between the desired tie points.

Trunk-mount version

The only difference between the trunk-mount and front-mount radios is the front panel. Unless there is a desire to operate the trunk-mount radio remotely, the only thing required for the radio to operate is to place a jumper wire between front panel connector pins "E" and "N" — this jumper substitutes for a remote power-on switch.

Fig. 7 shows the front panel connector, pin functions, and external controls needed to operate the radio remotely. Internal volume and squelch pots are mounted on the front panel and accessible through two holes in the panel. For repeater operation, these pots are set and then left alone. When the radio is controlled remotely, these pots are adjusted to one end, allowing the remote pots to perform the function.

Conclusion

Our club has had a lot of fun just playing with the repeater since it was completed. It has been moved around to various areas within the vicinity of Los Angeles just to see how well it would perform, and so far it has proven to be a satisfactory portable and emergency repeater.

If you or your club is interested in having a portable repeater, I'd suggest modifying a Pace Landmark 3 Series radio for your repeater application. The next step is to scout the swap meets for a radio, and then enter into the modification process. Then write up your project for *73*, of course! 73

Charles L. Vinson KF6FJU
c/o 73 Magazine
70 Hancock Rd., Ste. C
Peterborough NH 03458

Inside Today's Kit Biz

An interview with Marshall Emm N1FN.

I remember the first kit I built. It was a 40-meter DC receiver. I had no idea how the circuits worked. The building in itself fascinated me. After spending hours reading and soldering, I inhaled deeply, and with index finger trembling, I flipped the "ON" button.

As the sounds crackled to life, a shout of utter delight exploded from my lungs. Jumping midway in the air, I suddenly saw the clock — 1 a.m. My wife ran into the kitchen with a look of dismay. Relieved that I had not killed myself (maybe not, come to think of it and considering the time), she went to bed shaking her head in disbelief. There is something primal in the fact that a radio reaches out to the world after being built by your own hands. As humans, we hunger to communicate with others. Even a lone mountain climber needs to hear the sound of his echo.

Recently, I set out on a journey to resupply my radio shack with kits and limited home-brewed items. Letters went out, and only a few companies responded with the exact items I required. Scratch building at the time was not within my abilities. Not all of us are electronic wizards who dream of schematics in the sky. We depend on other hams to supply our desires for designs.

That's when my telephone rang. A calm voice asked for me by name, and one hour later I knew that my search had not been in vain. It was Marshall Emm N1FN, president of Milestone Technologies, Inc., which is better known through its trading names of Morse Express and Oak Hills Research. He is an amateur operator who provides tremendous service through radio equipment.

If hams have guardian angels on Earth, mine had made a personal call. Call them Elmers, neighbors, or just friends if you like. But, each of them is a huge support factor in our hobby. They must never be taken for granted. Never.

Marshall is more than a ham — he is a man who looks out for the future of the hobby with great care. The ham bug bit him while he was in the 8th grade. During the sixties, with his interest in electronics, chemistry, and rocketry, he more than likely helped to pioneer the term "geek." And, his pioneer character became the catalyst for

Photo A. *Larry N2WW/UA6HZ forgoes his towers, beams, and linear to take part in a QRP field event.*

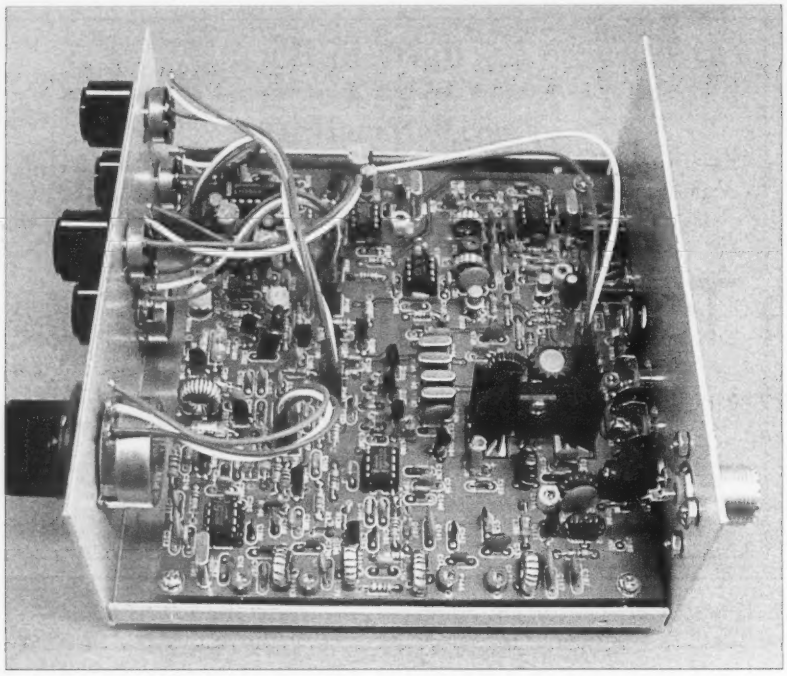

Photo B. *The Oak Hills Research 100A single-band CW transceiver.*

adventures that far surpass the dreams of many others.

Born in 1949 in Syracuse NY, Marshall grew up knowing the importance of a good education. At a time when thousands of his contemporaries were being drafted to fight in Vietnam, Marshall dropped out of college and enlisted in the Air Force. After one and a half years of learning Russian, his linguistic duties had him operating as a "radio spy" in Athens, Greece. In 1973, he left the AF, got married, finished college, moved to Australia, helped to raise three daughters, and started Milestone Technologies Pty Ltd. This is where he fell in love with CW operation quickly after getting his first license (VK2DXP). He had a small farm, which was named "Milestone" because there was a genuine old-fashioned milestone on the road with room for a V-Beam antenna. He discovered QRP for himself.

Photo C. *N1FN and his code-copying dog, Samson.*

He and his family eventually moved back to the United States, choosing Denver CO, at the end of 1990. Five years later, in his search for the ultimate "dream key," he attempted to contact a mysterious Russian named "Larry," who sources claimed possessed a Soviet Russian paddle. Even though Marshall knew this was an excellent device, he really hoped there was some off-chance that he could procure a straight key. So, with an old QSL card in hand, phone calls were made to New York City. Sorry, no Larry — he had returned to Russia. A letter is mailed out — no response.

Now it is New Year's Eve, 1995, and Marshall, hugging groceries, walks to his car. A strange, bearded guy jumps out of the car parked next to his and runs over with his hand out. Marshall is thinking this must be a beggar, or at least a solicitation for funds.

"You're N1FN?" the strange man asks.

"Yes," replies Marshall.

"I'm Larry, WJ1R," says the man, and points to his license plate.

When Marshall's brain cells finally started to thaw, he realized that this was the same Larry he had earnestly sought six months previously.

Larry turned out to be a genuine ham radio VIP, having been president of the Soviet Amateur Radio Union, WRTC judge, and big-time DXer and contester.

That day, in the middle of winter in the parking lot, Morse Express really took off. By 1999, Marshall's company was acknowledged as the largest seller of keys and related equipment in the world.

In an interview I had with Marshall, he provided some very interesting answers to questions regarding Oak Hills Research, CW, kits, and radio in general.

KF6FJU: How and when did you become the owner of Oak Hills Research?

N1FN: I love to build stuff, and I was particularly impressed by the Oak Hills Research kits, which have more than a passing comparability to the late, lamented Heathkits. I built many of the OHR kits, and was even a dealer for them for a while. When Dick Witzke KE8KL indicated a desire to sell the business and retire, I jumped at it. We acquired OHR in April 1999, and it is now a very important and rewarding part of Milestone Technologies.

KF6FJU: Did you view the acquisition of OHR as a dream come true?

N1FN: Sort of. I often tell people it was like the old Remington shaver ads — "I liked the kits so much, I bought the company." It's true that everybody who has ever built a kit has had ideas of how it could be better, and many of us builders dream of finding something that we could sell as a kit, if only to provide a little financial support for our own kit-building habits. But in this case of OHR, it was part of a larger dream, which has largely come true. I wanted to be in a position to provide every single thing that a ham or prospective ham needs to get on the air to become an active CW operator.

KF6FJU: What has been your most humorous encounter as the owner of the company?

N1FN: Well, there was this one guy who I'm sure won't mind if he happens to see this. I spent half an hour with him on the phone trying to measure voltages as a kind of starting point. Partly it was my own stupidity at asking the wrong questions, or starting in the wrong place in the diagnosis, but I have to give my builders SOME credit, so I took him at his word that his radio would not transmit.

True, we fairly quickly got to the point where it was obvious that it wouldn't receive either, by looking for the required voltages at about a dozen points in the circuit. Eventually I had him measure the voltage on the inside of the power jack, and the end of the power cord, and then the voltage coming out of the power supply, when he asked me, "Should I turn the power supply on?"

I thought about it for a second and said, "No. What you need to do now is grab your soldering iron, your kit, and your amateur radio license, and go stand by the door. An FCC inspector will be there to confiscate them in about ten minutes."

This guy was OK with the sarcasm, and has gone on to be an active and skilled builder/operator.

KF6FJU: What is OHR working on right now?

N1FN: The kit business is pretty competitive, so I can't really say what we're working on. Suffice it to say that we will be developing the OHR100A for more bands, and are working on a couple of very useful accessory kits.

KF6FJU: Tell me about ET. Are you really from outer space?

N1FN: Sometimes I think I must be. Or that everybody else is. But I came by the handle honestly. (By the way, "handle" is a perfectly good amateur radio term going back to the dawn of the hobby; it was adopted by CB users but is emphatically NOT one of the many CB slang terms that we need to avoid!). I operate DX frequently, and in contests. And, Marshall is not the easiest or quickest name for a ham radio operator. It seems to take forever to send it, and I almost always have to repeat it. But, then one night I was in a nice ragchew QSO with an older gentleman in Florida, who was in fact so old that he was having difficulty controlling the key. My callsign at the time was AAØXI, and this old guy kept sending it as "ET ET Ø NAEE." A friend happened to be sandbagging and started calling me ET. It sort of stuck, and I quickly realized that I could send ET three times faster than I could send "Marshall" once.

KF6FJU: What are your suggestions for the new ham?

N1FN: Have you seen the size of the *ARRL Handbook* lately? It contains MOST of my suggestions for the new ham. Seriously, the best advice that I can offer the new guy is to get on the air and OPERATE! Put down this magazine right now, and go work somebody. That's what this hobby is all about.

KF6FJU: If someone were to start a radio company today, what are the top three items you would advise them to prepare for in the business?

N1FN: In order: disappointment, disappointment, and success. Seriously, go to the local community college and take Business 101. A business is a business, and it doesn't matter whether it is a radio company or a potato company. There is a lot to running a business that is not apparent to somebody who hasn't tried to do it, and there are a lot of things that have to come together just right. The best advice

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KF6FJU: What is your opinion of hams today, compared to twenty years ago?

N1FN: That's kind of a loaded question, isn't it. The hobby certainly is changing, and in ways that I don't particularly care for. Ham radio for me is building a radio, an antenna, and talking to some guy on the other side of world (using CW of course) who has the same interests. But, for a majority now (in terms of simple numbers, anyhow), it's going to the local radio superstore or Internet site and buying an HT so they can use the repeater to talk to somebody on the other side of town who has the same interests. What a change, over twenty years or so ago. Unfortunately, while administration of the hobby has never been "majority rules," we are getting to the point where a majority of the administrators have come into the hobby through the easier and less technical routes, and those are the guys who make or influence policy and regulations.

Guys (who) design and build stuff help each other. They talk to each other, have active clubs, and — most important — they operate. There is QRP FM, VHF, UHF, TV, RTTY, you name it. My local club, the Colorado QRP Club (CQC), set the all-time records for classes 2A and 3A in the last two Field Days, placing well into the Top Ten stations overall, with that arbitrary 5W of power. Let me just say that having an amateur radio license does not automatically make one a ham.

KF6FJU: Do you see your company as a modern Heathkit?

N1FN: Yes and no. There is actually a literal connection or two between Oak Hills Research and Heathkit. We use the same style of instruction (step by step, liberally illustrated), and the guy who drew for Heathkit did many of the drawings in our manuals. That's the yes. The no is that Heathkit ultimately failed, because it forgot rule number one and failed to define the business.

Electronics is just too big a field. Electronic manufacturing is so efficient now that almost every device can be sold at a price much lower than a kit of parts to make it from.

And then of course there is the support issue. So, you can only sell kits to people who see some benefit in doing the building themselves, or in other words, the building process is part of the fun, really a hobby in its own right. Our primary goal with OHR kits is to provide good, usable amateur radio equipment at reasonable cost, and the "kit building" is actually secondary to that. If Heathkit had stuck to that, rather than focusing on "teaching electronics and TV repair," they'd still be in business.

KF6FJU: What can you remember about your first radio shack and rig?

N1FN: Everything. Most especially, 40m was wall-to-wall Japanese stations. It was an FT-7, running off a tractor battery, and of course the famous Hi-Mound HK-708 that got the Morse Express ball rolling.

KF6FJU: What is the major difference between kits and factory-built radios?

N1FN: Essentially none, apart from application. We build OHR radios, and there's no difference between them and the kits. That's true of many of our other products. But, application comes into it because you are not going to find a Yaesu FT-1000D in kit form — you reach a point in price and complexity where a kit doesn't make sense. There is, of course, the "components issue," in that components with leads are becoming scarce, and surface mount technology is a bit beyond the curve for most hobbyists. But as I said, building a kit is an end in itself for many people, and there is the opportunity to learn a bit about the circuit while you're building it.

KF6FJU: Where do you see ham radio going in the future?

N1FN: I really hate to guess. I predict a good future for CW, and QRP HF, even if they become a relatively small part of the "official" hobby. The things that appeal about it are not going to change, and it's important to keep some perspective. They dropped the Novice license because in its last year there were fewer than a thousand of them issued. Less than a percent of licensed hams. That's how they looked at it, anyhow. I saw a thousand people who were coming into the hobby, and to me that's a lot of guys.

KF6FJU: What can the ham expect from Oak Hills Research?

N1FN: Easy-to-build kits for good, reliable equipment that they can have a lot of fun on the air with. All at a reasonable price, and with superb service and support, of course.

One of the best ways to find out more about Marshall Emm, OHR, or Morse Express is to check his Web out at: [http://www.morsex.com]. The Oak Hills address is Oak Hills Research, 2460 S. Moline Way, Aurora CO 80014; tel. 800-238-8205; E-mail: [qrp@ohr.com].

On the Web, you may even catch a glimpse of Marshall's dog, "Sammy," the only CW-receiving canine recorded to date (**Photo C**). Really, the dog can understand code. Marshall may have had the dog beamed down — "Hello, Scotty?" 73

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Close Encounters of the 5R Kind

Our Fearless Phil moseys out to Madagascar.

The OH2MCN Web site [http://www.qsl.net/oh2mcn/license.htm] let me down this time. In the past, this site has been a source of extremely valuable information on obtaining a license in a country which Jan and I are planning to visit, but all that was listed at the time I first made enquiries in April 2000 was the address of the Ministere des Postes et Telecommunications in Antananarivo (Tana). Thankfully, this has now been considerably updated as a result of information provided from Ken Pendarvis AD6KA/5R8GQ.

Our interest in visiting this strange and wonderful island was initially sparked by a newspaper item shortly after the 1999 total eclipse, which pointed out that the next total eclipse was not in 2090, but in Africa in June 2001, with the path of totality crossing the south of the country. Further research quickly revealed that the cost of visiting at the time of the eclipse was substantially higher than at other times, so we decided to go in September instead. A copy of *The Lonely Planet* guide was duly purchased and we settled down to planning our itinerary. We also bought a French language tape to brush up on our linguistics while driving to and from work.

Madagascar is the fourth largest island in the world, lies in the Indian Ocean, and is separated from continental Africa by the 400-km-wide Mozambique Channel. The island itself is some 1,300 km long and some 400 km wide, lying more or less between 12° and 26° south. When Gondwanaland, the world's biggest landmass, split into continents 165 million years ago, Madagascar was left behind and is now often described as "the land that time forgot." Madagascar's flora and fauna took a quite different evolutionary route than that of the rest of Africa, resulting in a huge number of unique

Continued on page 28

***Photo A.** Arriving at the airport in Tana. L-R: Cortez' driver with the 6-meter antenna; Jean-Claude 5R8GO, Phil G3SWH, Solofo 5R8ET, and Fidy 5R8FV.*

***Photo B.** Presenting the 6-meter antenna. L-R: Andreas 5R8FL, Ake 5R8FU, and Phil G3SWH.*

Photo C. *Suddenly I was QSL manager for several 5R stations! L-R: Eddy 5R8FT, Andreas 5R8FL, Phil G3SWH, Jean-Claude 5R8GO, and Albert 5R8GZ (ex-5R8O).*

Photo D. *The ring-tail lemurs at Berenty will help you with your breakfast.*

Close Encounters of the 5R Kind

continued from page 27

endemic species, probably the best known of which are the lemurs.

There are several tour operators in the UK who include Madagascar in their portfolio, but all are rather costly, even outside of eclipse time! Consequently, we decided to do our "own thing" once again and sent off a series of E-mails to those travel agents listed in the guidebook. One particular agent, Cortez Expeditions, responded with such efficiency and enthusiasm that we almost immediately started negotiations for our own tailor-made itinerary. We opted for our tested formula of a week's fairly intensive traveling and a week relaxing on a beach, when I could play a bit of radio. We also found that if we booked our international flights on Air Madagascar — affectionately known as "Air Mad" — then all our internal flights would be heavily discounted. Flights were from Paris-Charles de Gaulle airport, so we cashed in some air miles and booked feeder flights from Bristol to Paris to make the connections.

When the revisions to the IOTA Directory were implemented in 2000, a new island group — "Madagascar's Coastal Islands East: AF-090" — was created and I noted that this included Nosy Bohara (a/k/a Ile Sainte Marie). The guidebook describes the island in glowing terms, and I proposed to Jan that we spend our beach time there, hoping to be the first to activate the island group.

I also started to make enquiries about getting a license. A letter to the Ministère des Postes et Télécommunications in May 2000 actually elicited a response after a delay of several months, but I decided that I needed someone on the ground to help with the formalities. I had a couple of false starts but then a notice appeared in one of the DX bulletins announcing that Ken AD6KA was going to visit his sister in Tana during September 2000 and would be active as 5R8GQ. After a bit of detective work, I found an E-mail address and Ken put me in touch with Patrick 5R8EW, who agreed to help. Unfortunately, Patrick's health deteriorated and he was unable to

Photo E. *One of the enchanting Verreaux's sifikas with her baby at Berenty.*

Photo F. *A brown lemur being handfed with bananas at Vakona.*

Photo G. *Gigi, the black-and-white ruffed lemur at Vakona.*

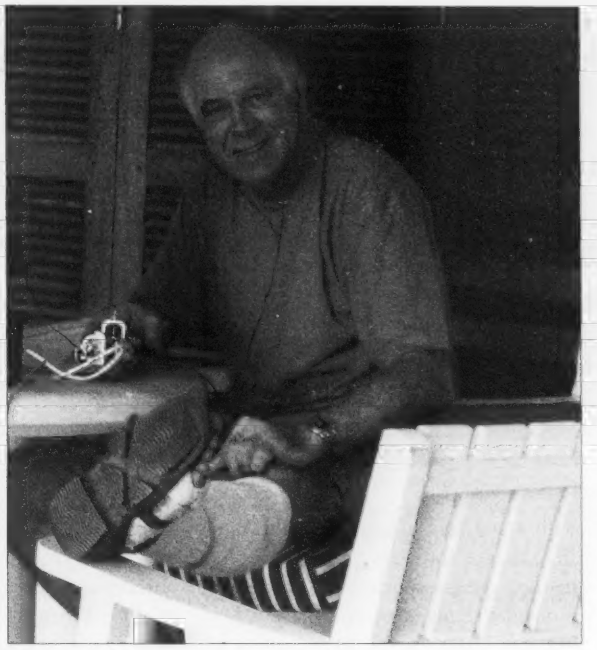

Photo H. *Phil, resting his broken ankle while running the pile-up at Ile Sainte Marie.*

complete the arrangements and, in February 2001, with Ken's further help, I was put in touch with Solofo 5R8ET, who was efficiency itself.

Copies of the current application forms issued by the Office Malagasy d'Etudes et de Régulation de Telecommunications (OMERT) arrived promptly by E-mail, and were duly completed (in French) with help from Solofo. Copies of the forms, a copy of my UK license, a copy of the ICOM IC-706 specification, and four passport photographs were sent by DHL to Solofo in early April 2001. The actual license fee was 900,000 Malagasy francs (FMG) — about £90, which had to be transferred to Solofo by Western Union. With the DHL and Western Union fees, the actual cost of the license was around £150.

On 1st August 2001 I received an E-mail from Solofo informing me that my call was to be 5R8HA. I had asked for 5R8WH, but apparently OMERT will only issue callsigns in sequence.

Everything seemed to be organized, but then Murphy took a hand — or more accurately a foot — as I managed to break my left ankle three short weeks before we were due to leave. Those three weeks were very uncomfortable, as I was in plaster from toe to knee, not a little pain, and couldn't drive. Much soul searching took place as to whether we would or would not travel. The French language practice also suffered a setback! The license was only valid for three months, and there was no possibility of rescheduling the flights within that period. I was able to walk with the help of a stick, and once I had proved I could struggle the 400 meters to my mother's and back again without collapsing, the decision was made. We would go!

Kerry GØLCS also contacted me and asked if I would be prepared to take a six-meter beam with me as a gift from the UK Six Meter Group to Ake 5R8FU. The originally proposed antenna was over three meters long, which was clearly out of the question. However, an alternative was found that was shipped in an 1,800-mm-long tube, and we were able to cope with that. Fidy 5R8FV also asked if I could buy and take with me an SGC automatic ATU, for which he would pay me in Malagasy francs on arrival. Both items were provided by Mike G3SED at Nevada and were in addition to the handful of components, gifts, etc., which we were taking for Solofo and his family.

5th September, the day of departure finally dawned, and the check-in clerk at Bristol Airport offered to book the bags through to Tana. Fearing a repeat of the lost baggage problems during our Sri Lankan trip, we declined and elected to manhandle them between the arrivals and departure areas at Paris-CDG. It wasn't until we got to Paris that we realized we had to change terminals via a shuttle bus. In view of my lack of mobility, we decided to take three small checked bags rather than the usual two large ones, plus hand luggage, camera bags and, of course, the six-meter antenna. Getting on and off the bus was somewhat difficult and we were afraid that the driver was going to leave us on the pavement with some of our bags still on the bus. As it happened, the only thing left behind was my walking stick!

The flight was uneventful, and we arrived at Ivato International airport in the early morning of 6th September. We joined the queue to pass through Immigration and struck up a conversation

Photo I. *A humpback whale tail off Ile Sainte Marie.*

with some sort of uniformed official. In exchange for a couple of dollar bills he took our passports, very efficiently jumped the queue, came back a few minutes later with them properly stamped and ushered us into the baggage reclaim area. It was here that Solofo had arranged for Fidy 5R8FV to meet us and deal with the formalities of temporarily importing the radio and computer equipment. Although we didn't know it until we arrived, Fidy is the general in charge of military communications within Madagascar and turned up dressed in his fatigues. He seemed to know everyone at the airport and we were very quickly through the Customs, where we were met by Solofo and Jean-Claude 5R8GO.

Our travel agent's driver also met us, and we set off for the 12-km drive into Tana itself. A typically third-world city of over a million people, it is polluted, chaotic, colorful, and most of all exciting. Thankfully, it is one of the only cities in the world without a McDonald's! The volume of traffic made the M25 on a bad day look positively sparse, and it took almost two hours to make the journey. There is only one set of traffic lights in the whole of Madagascar — and they were out of order!

Our hotel, the Royal Pallisandre, was on the side of a hill overlooking the city center. No sooner than we had settled in than the phone rang and it was Patrick 5R8EW calling to welcome us. His three-element beam was actually visible from the hotel balcony and under normal circumstances we could have walked down for an eyeball QSO, but that involved negotiating a number of steps which I didn't feel confident in attempting with my leg still in plaster.

That afternoon, Solofo and his wife Irinée collected us and drove us to visit the Radio Nederland shortwave relay station where he works, about 20 km north-east of Tana. It was our first opportunity to see something of the countryside of the highlands with zebu-carts on the road and brightly colored houses, rice paddies, and beautiful flowering plants and trees alongside it. The relay station was first set up in 1971 and presently rebroadcasts Dutch programs for 17 hours per day via two 300 kW AM transmitters to listeners in Africa, the Middle East, and South East Asia, as well as to Indonesia and west Australia. The programs themselves are received via a satellite link from Hilversum in the Netherlands.

The following morning, Solofo collected us and took us to OMERT to have the IC-706 checked over for spurious emissions, using surprisingly sophisticated test equipment, prior to actually issuing the license. This was the primary reason for the high cost of the actual license, although the cynic in me suspected an opportunity to earn some foreign currency. The radio passed with flying colors, but the license document itself was still awaiting signature by a senior official. Solofo arranged to collect it on my behalf and give it to me at the airport when we left.

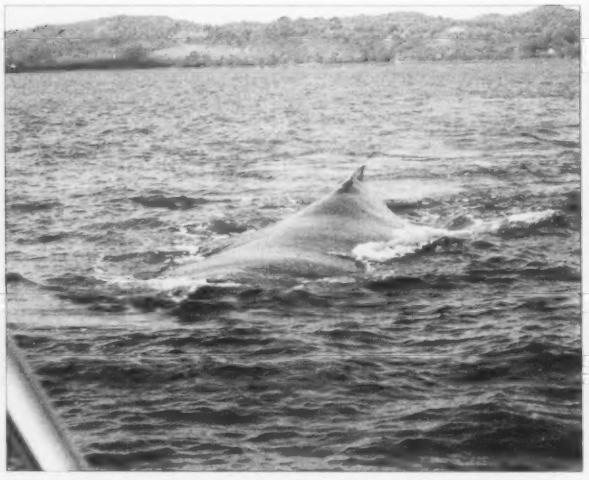

Photo J. *The humpback whales that swam under the boat.*

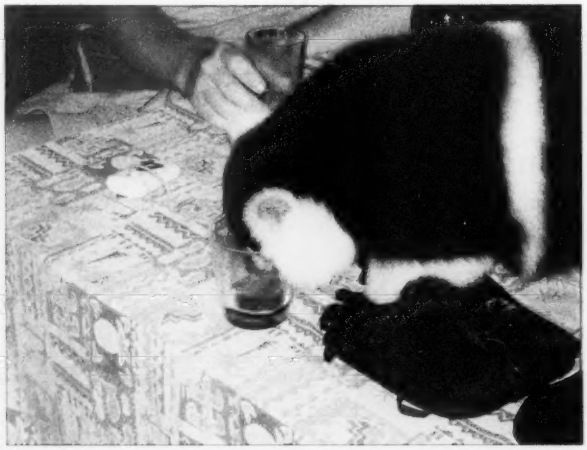

Photo K. *The black-and-white ruffed lemurs at Les Lemuriens on the Ile aux Nattes will drink your Coke from your glass!*

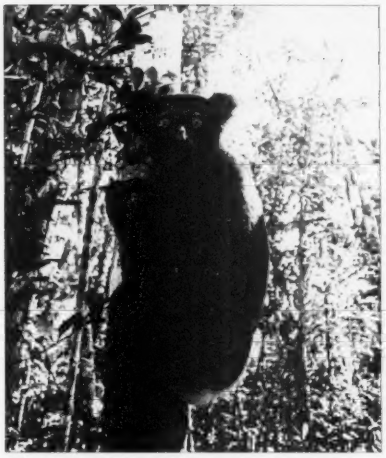

Photo L. *The Indri at the Bush House reserve.*

That evening, Solofo and his XYL Irinée hosted a small party at their house, to which were invited most of the amateurs in Tana, including Ake 5R8FU; Albert, ex-5R8O and now 5R8GZ; Andreas 5R8FL; Eddy 5R8FT; and Jean-Claude 5R8GO and Fidy 5R8FV, together with their XYLs. I was able to present the six-meter antenna to Ake and the ATU to Fidy and be introduced to the local brew, called "Three Horses Beer" — impossible for the Malagasy to pronounce and consequently called "THB" for short. Conversation naturally revolved around amateur radio in general, and in particular the problems of sending and receiving QSL cards in Madagascar, where both incoming and outgoing mail theft is particularly prevalent. Several of the guys backed me into a corner, and suddenly I was the QSL manager for six 5R callsigns!

The following morning was the start of our tour proper, and we were driven from the hotel to the airport to take the plane to Fort Dauphin (Taolagnaro) in the dry, arid south, via Tulear (Toliara). Most of the old French place names have been replaced by their Malagasy equivalents, but some are still retained. There were no seat allocations and the in-flight refreshments consisted of a glass of Coke and a packet of biscuits. On arrival we were met by our driver Sylvester, and English speaking guide Dodi, in a four-wheel-drive Suzuki jeep. We set off for the two-hour, 80-km drive inland to the Berenty Private Reserve, where we were to stay for two nights. The road surface was appalling and Dodi explained that it had not been repaired since it was first laid in 1956. En route, we passed through the so-called "spiny forest" made up of several species of plants and trees able to survive in the extremely arid environment. Berenty itself is justifiably famous for its wildlife with many species present, including ring-tailed and brown lemurs. We were particularly delighted to see several of the enchanting Verreaux's sifikas: large, creamy-white lemurs with brown caps and black faces, who spend most of their time in the trees of the spiny forest. When they do come down to earth, they dance their way across the open ground on two legs in the most comical manner. Accommodation was in a simple shack with twin beds, mosquito nets, a shower, and WC. Dire warnings are given not to let the ring-tails into your room, although preventing them from helping themselves to your breakfast was a little more difficult! The weather was glorious and the stars at night had to be seen to be believed.

Returning to Tana for another night at the Palissandre, we again met Solofo and Irineé for an evening meal. Next morning, a new driver, Frank, collected us for the three-hour drive east from Tana to the Andasibe National Park in the eastern rain forest, where we were to stay for two nights at the luxurious Vakona Forest Lodge. Our route followed the Chinese-built Route Nationale RN2, between Tana and the port of Toamasina (Tamatave) on the coast, which the Foreign Office Web site describes as "particularly dangerous." Frank spoke little or no English, so our French studies were put severely to the test. He was a competent enough driver and got us there safely in time for a late lunch, although we did see several trucks with their loads in the ditch and, on one occasion, a truck in the ravine alongside the road.

That evening we were scheduled for a night walk with a guide, but it was raining, and the track steep, muddy, and slippery, which was soon agreed to be a bad combination for a man with a leg in plaster. Early next morning the

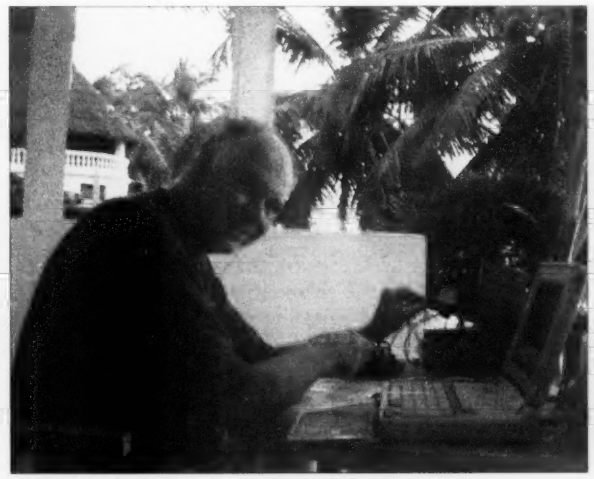

Photo M. *Phil operating from AF-090 as 5R89HA.*

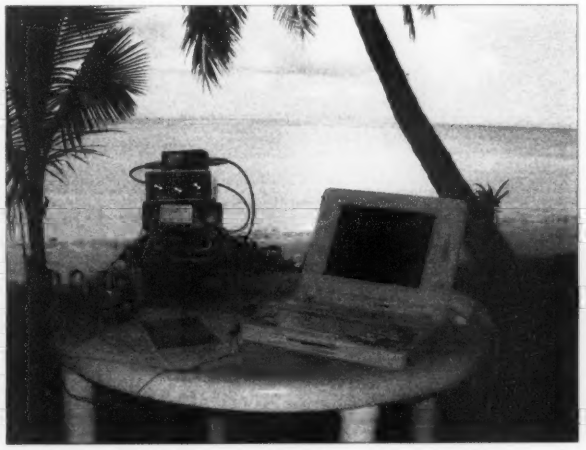

Photo N. *The setup and takeoff to the northwest from the Soanambo Hotel.*

weather was better and we met up with our English-speaking guide Désiré to search in the Périnet Reserve for the largest of the lemurs, the Indri. Standing about a meter tall with almost no tail, black-and-white markings, and a surprised teddy bear face, it is their song that makes the Indri special. It is an eerie, wailing sound, somewhere between the song of a whale and a police siren that carries for up to three kilometers. We were delighted to find a small family in the thick woods who put on a spectacular performance for us.

That afternoon, we visited Lemur Island, a small reserve operated by the Vakona Forest Lodge. Here we were introduced to Gigi, a very friendly black-and-white ruffed lemur whom we were able to feed with bananas before being jumped on and clambered over by several other species of lemurs while being warned not to stroke them.

That evening when we went to the bar for a predinner drink, a very somber Frank greeted us with the news of an aircraft having crashed into the Pentagon. It was September 11, and we could barely believe the pictures on the satellite TV, which was somehow made all the worse as the soundtrack was in French. Whilst it was clear that terrible events were taking place, we could not fully understand the gravity as few people spoke enough English to explain what was happening and neither was our French good enough. It wasn't until we arrived home that we fully understood the horror of what had happened that day.

Next morning we checked out and Frank drove us down to the coast near Brickaville, where we made a rendezvous with a speedboat to carry us along the Canal des Pangalenes to Bush House on Lake Ampitabe for the next two nights. The Pangalenes are a 600-km chain of natural lakes and canals created in French colonial times, with only 100 meters or so of land separating them from the Indian Ocean. We were greeted on the jetty by Bambino, a Malagasy man who spoke excellent English as well as French, German, and Italian. After Vakona, Bush House was basic but comfortable with our own bungalow overlooking the lake. The mosquito net wouldn't close properly around the bed and there was no evidence of the nasty creatures, although we did wake one morning to find a palm-sized golden orb-web spider on the inside of the net. The bar and restaurant were reached via a steep, beaten-earth stairway but the excellent food made the climb well worth it! There was even a pet bamboo lemur named Sugar Baby.

Bush House has its own private reserve a short distance along the beach. There are various species of introduced lemurs, including a few hybrids. Although they are free-ranging, they are tame enough to be photographed and will clamber all over you looking for bananas. The highlight was for the guide, Sylvain to imitate the song of the Indri and for the resident to come out of the forest to join in.

We were joined next morning by a Belgian couple for our journey along the Pangalenes to Tamatave, where we were met by a girl in a tiny Renault 5, who was to take us to the airport for our flight to Ile Sainte Marie. Unfortunately, the Belgians had no prearranged transport and none was available, so all four of us, together with our bags, crammed into the car. I was lucky to get the front seat because of my broken ankle! We have since become very firm friends! Solofo had tried to arrange for Michel 5R8EE to meet us at the airport, but he failed to show up. The aircraft was a Twin Otter, and each passenger was carefully weighed in addition to every item of luggage.

My plans to be the first to activate the AF-090 group were confounded as Sigi DJ4TJ/5R8GT/P, Bert PA3GIO/5R8GY and Jacques F6BUM/5R8HC all beat me to it. Strangely, all three operated from the Hotel La Cocoteraie on the northern tip of Sainte Marie. Described as the most isolated of the island's hotels, it is only 40 km from the airport — but such is the state of the island's roads that it takes 2.5 hours to get there! Electricity is available only from generators or batteries.

Arriving at the island's airport, we were met by a minibus from the Soanambo Hotel. Our Belgian friends went on to another hotel nearer the capital, Ambodifotatra. We had elected to stay at the Hotel Soanambo, because it has mains electricity and is only about a 10-minute drive from the airport, overlooking the 8-km-wide strait between the island's west coast and the mainland.

Our room was on the ground floor of a two-story house — literally three meters from the high tide mark — and the beach was lined with conveniently placed palm trees. Even with my leg in plaster, it was a simple job to throw a weighted string over a couple of trees and to rig the antenna facing northwest at about 5 meters above the beach. This trip, I followed Alan G3XAQ's suggestion of a 16-meter top, fed with 300-ohm line via an ATU, but had a selection of wire dipoles and lengths of coax in my bag — just in case. I need not have worried, as the single antenna tuned happily on all bands and worked tremendously well, particularly on 10 meters.

With the station set up on the patio outside the room, the first QSO was with F6ACV on 17-meter CW at 1418 UTC on 15th September and a pile-up quickly developed. I had made the mistake of being too keen to get on the air and had not properly set up the IC-706 for split working, which takes a minute or so. Consequently, this first period of activity was run simplex, but even so I made 134 QSOs in a little less than two hours before the dreaded call from Jan of "time to get ready for dinner."

Next day, I concentrated on 10 meters and had a couple of very good sessions, bringing the QSO total to 448. More sightseeing, including an unforgettable day at sea watching humpback whales cavorting in the strait, interrupted radio activities. At one stage, two of the huge creatures swam straight at our tiny boat, at the last moment diving to pass directly below it.

We also hired a pirogue (effectively a dugout canoe) to take us across to the small island of Ile aux Nattes (Nosy Nato) off the southern tip of the main island. Apart from lunch at the highly recommended restaurant of the Hotel

Continued on page 54

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What's in a Name?

Badge, that is? A cabin fever cure-all.

April 5th and 6th were the dates for "Atlanticon 2002" in Baltimore, Maryland, and let me tell you, it was nothing short of terrific! I've helped organize events for our club in the past, but never so grand an event as this. My hat is off to those members of the New Jersey QRP Club who poured their efforts into making this event the success that it was.

Let me start from the start. Having attended "Atlanticon" before, I sort of knew what to expect, but this one was way beyond my visions. The event is planned to cover a weekend in the spring, from Friday evening until pleasant good-byes on Sunday morning. Not being one who likes to drive when tired, a strange illness came over me at work on Friday. Naturally, I "cashed in" some of my "sick time" halfway through the workday and headed out. Somehow I don't think the boss really believed me — maybe it was the suitcase in the car that tipped him off. Oh, well, no matter. I was free from the shackles and was off to join the others in Maryland.

From my QTH (on the Hudson River by West Point) it was a six-hour drive to the hotel and check-in. I knew that I was in the right place because of all the mobile whips on the vehicles in the parking lot. My excitement, already at a fevered pitch, gained another notch. I tossed the bags in the room and began looking for other QRP-building hams to "bond" with, and I didn't have to look very far!

Those who knew that they would be in attendance had registered early and received a yellow "Badger" in the mail (see **Photo A**). This device is a name and callsign clip-on badge, but it also has a powered microprocessor circuit board, double-sided, attached to the reverse side. And, it was already programmed! (See **Photo B**.) Push the button on the front, and it sends your callsign in Morse and a bright LED flashes it at the same time! Neat! There was some "assembly required" and work stations were there for your use.

I'm not very good at staying up late after driving and working, so I made my way to my room after chatting for a few hours with some folks I remembered from past events.

Saturday morning arrived and the fun began!

Continued on page 34

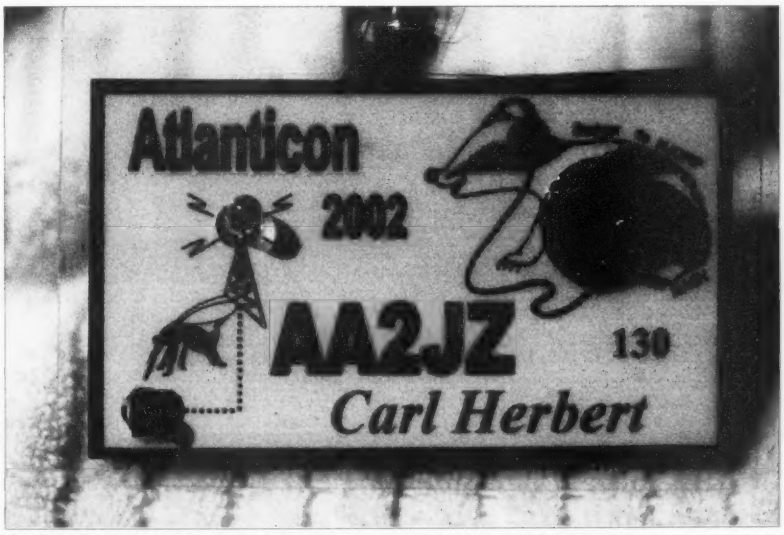

***Photo A.** The FRONT side of the badge, with its blinking LED, push-button, and piezo buzzer mounted in the "Badger." Your "chore" was cutting the holes to expose the buzzer, switch, and LED.*

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What's in a Name?

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Rich Arland K7SZ, master of ceremonies, promptly launched the event in a seemingly endless parade of topics that interest QRP builders most. From Joe Everhart N2CX with his presentation on "SPICE" (computer modeling of circuits) to Dave Benson K1SWL (dialog on antennas and EZNEC modeling of them), the enthusiasm never stopped. Between these two were Dave Gauding NFØR, with a modified DSW-40 transceiver; Jim Kortge K8IQY, measuring crystal parameters and how to use them; Paul Harden NA5N, impedance matching and transmitter design; and Ron Polityka WB3AAL, with "a tell-all" about QRPing along the trail. He hikes with a QRP rig and solar panel or battery attached to his anatomy!

Not a sound could be heard from the 150 or so attendees as each of these speakers made their presentations.

Stretch and coffee breaks were provided between speakers, but you didn't dare go too far! There were "door prize" drawings between events. LOTS OF THEM! The list of donors is too long to present here, but the generosity of the supporting groups was overwhelming!

Following the break for dinner, the evening festivities began with a surprise! Those "Badger" identification badges were programmed with "hidden clues." Some had a number/letter combination, others just a number. The object was to copy the clue from another's badge in Morse, add the data to your "fill in" sheet and complete the quote selected for the contest. You haven't heard QRM until you've heard 150 Morse-generating badges all going off at once!

To compete required that you circulate amongst the throng, gathering information from each attendee and giving your data in return! Now add the bright flashing LED to the clamor and perhaps you can imagine what it was like! BEDLAM!!! With prizes for the winners. Check the Web site [http://www.njqrp.org] for badger circuit details. There is also an article about them in the May 2002 issue of *QRP Quarterly.*

Last but far from least, Saturday evening is the "Building Contest." This is an eagerly awaited event for builders of all abilities to show off their endeavors for all to see. There are no rules, per se — just build to the best of your abilities and share your creation with the group. From the newest builder's doodad to the most competent engineered device, all were outstanding creations. Prizes were awarded in several categories, from the inexperienced builder entry class upward. It was very pleasing to see judges reward those who build with exemplary skill and then reward the new builder whose efforts were also recognized.

Photographs of home-brew equipment usually are placed on the Web site [http://www.njqrp.org]. For those of you who weren't in attendance, this is a great place to view other's handiwork and gain ideas for projects of your own. A more in-depth accounting of the event is there, complete with pictures of the projects in the building contest and the winners of various prizes.

Oh, well, my eagerly awaited Atlanticon Forum had to come to an end sometime! Now for that drive to the home QTH and work as usual in the morning. But you know, I'll bet that strange illness will in all probability repeat itself — next year! (You can count on it !) 73

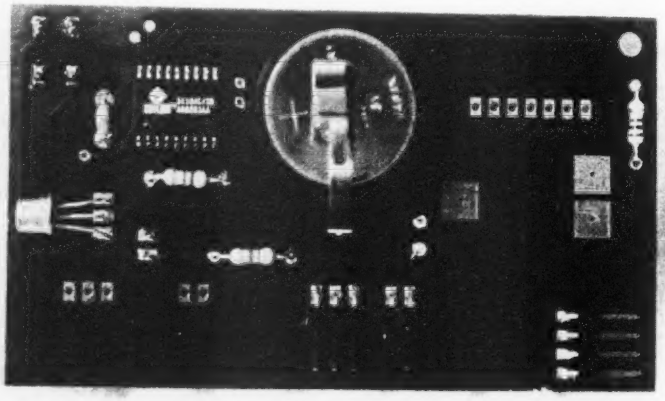

Photo B. *The "business side," or actually the rear or far side of the circuit board. Here three resistors, a capacitor, battery holder, and semiconductor had to be placed and soldered. The surface mount device was mounted for us. The other side of the board holds the LED, switch, and buzzer. This is the "give you the business" side of the board!*

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Letter From the Other Side

Re: Celebrating the bisesquicentennial of a shocking event.

This item from The Hertzian Herald *is published to commemorate the 250th anniversary of the first practical application of electricity (Franklin's lightning rod, June–October 1752, depending on how you see it).*

At age 21, I was just trying to establish myself as a respectable young man, so I felt like a perfect fool, running around out there in that field. I knew that if anyone saw me I would have a great deal of explaining to do. And, indeed, for years afterward the pulpits around Philadelphia rang with the warning that only Satan himself could have concocted such a scheme as to poke pointed metal sticks up into God's heaven, literally daring Him to send lightning bolts down to destroy us.

The gusting wind spun the kite in dizzy circles each time I tossed it into the air, and I considered it fortunate that the sharp wire point Father had attached to the top of it buried itself in the ground each time it landed, rather than into my head or shoulders. Finally, as the rain started to fall and the wind steadied, I got enough tail on it to keep it stable, and it rose into the lowering clouds.

Father was seated in a shed at the edge of the field, safe from the rain and the eyes of curious neighbors, paying out the hempen string through a window. He had to remain "insulated," he said. He wouldn't touch the wet string, but only held a dry silk handkerchief he had tied to the end of it. After some time sparks began to jump from the end of a large iron key he had also tied to the end of the moist string. He then touched an electroscope to the key, and the leaves inside the glass vial floated apart.

"That clinches it, William," he said. "Lightning and electricity are one!"

Father had been experimenting with electricity since 1746, generating great sparks by rubbing a rapidly rotating glass sphere, and igniting spirituous fumes, and tingling folks with "electric shocks," which I found quite disagreeable. On several occasions he deliberately killed turkeys with these shocks, and at least once he very nearly killed a goose — himself — knocking himself quite senseless. He claimed to have ignited a flame by an electric discharge sent across a river, using the river water as the conductive medium — a feat which I never witnessed, but if true, it anticipated Morse's telegraph by nearly 90 years, and Marconi's wireless by some 140.

In 1750, electricity was thought to consist of two fluids: vitreous (obtained by rubbing glass) and resinous (from rubbing rosin). Father first proposed that it was a single fluid, flowing between two poles that he named positive and negative. He was also the first to connect electric sources in series, which he called a battery.

After the success of the kite experiment, Father knew exactly what to do. He recognized that the clouds and the Earth were the two plates of an enormous Leyden jar (a capacitor, I believe you call it in 2002), and he proposed to discharge it in the usual way, only on a much larger scale. In October his newspaper, the *Pennsylvania Gazette*, carried complete directions for performing the experiment — carefully phrased in the passive voice (a kite is to be made) to avoid revealing that he himself had done it. That same issue carried an advertisement for the new edition of his *Poor Richard's Almanac*, which in turn contained similarly worded instructions for constructing a grounded lightning rod, with confident

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Saving the Fleet

Of batteries, that is.

It is interesting to observe that batteries cared for by a single user generally last longer than those operating in an open fleet system where everyone has access to them, but no one is accountable for them.

In this article, we look at two distinct battery users — the personal user and the fleet operator — and provide suggestions for prolonging battery life and increasing reliability in the rather harsh environment of fleet use.

A personal user is one who operates a mobile phone, a laptop, or a video camera for business or pleasure. He or she will likely follow the recommended guidelines in caring for the battery. The user will get to know the irregularities of the battery. When the runtime gets low, the battery will get serviced or replaced. Critical failures are rare, because the owner adjusts to the performance of the battery and lowers expectations as the battery ages.

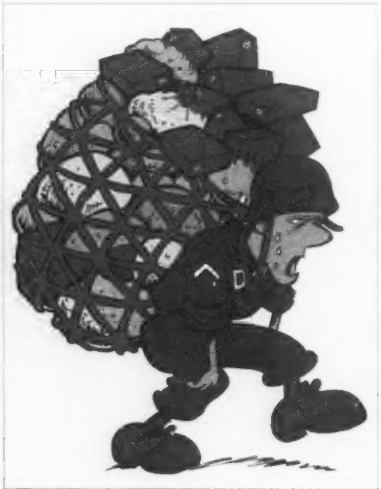

Photo A. *Results of battery neglect. The soldier is carrying rocks instead of batteries. Maintenance helps to keep deadwood out of military arsenal. (Cadex Electronics, Inc.)*

The fleet user, on the other hand, has little personal interest in the battery and is unlikely to tolerate a pack that is less than perfect. He simply grabs a battery from the charger and expects it to last through the shift. The battery is returned to the charger at the end of the day, ready for the next person. Perhaps due to neglect, fleet batteries generally provide a shorter service life than those in personal use.

How can fleet batteries be made to last longer? An interesting observation can be made by comparing the practices of the U.S. Army and the Dutch Army, both of which use fleet batteries. The U.S. Army issues batteries with no maintenance program in place. If the battery fails, another pack is released, no questions asked. Little or no care is given, and the failure rate is high.

The Dutch Army, on the other hand, has moved away from the open fleet system by making the soldiers responsible for their own batteries. This change was made in an attempt to reduce operational costs and improve reliability. The batteries are issued to the soldiers and they become part of their personal belongings. The results are startling. Since the Dutch Army adopted this new regime, the failure rate has dropped considerably; at the same time, battery performance has increased. Unexpected downtime has almost been eliminated.

It should be noted that the Dutch Army uses NiCd batteries exclusively. Each pack receives periodic maintenance on a Cadex battery analyzer to prolong service life. Batteries that do not meet the 80 percent target capacity setting are reconditioned; those that fail to meet the target setting are replaced.

The U.S. Army, on the other hand, uses NiMH batteries, which are known to have a shorter service life. The army is evaluating the Li-ion polymer for the next-generation battery.

Battery analyzers for critical missions

The high failure rate of fleet batteries, excessive replacement costs, and poor reliability have prompted many organizations to service rechargeable batteries with a battery analyzer on a regular basis. Today, battery analyzers play a critical role in prolonging battery life and maintaining a healthy battery fleet.

Conventional wisdom says that a new battery always performs flawlessly, yet many users realize that a fresh battery may not always meet the manufacturer's specifications. With a battery analyzer, weak batteries can be identified and primed. If the capacity does not improve, the packs can be returned to the vendor for warranty replacement. Entire batches of new batteries have been sent back because of unacceptable performance. Had these batteries been released without prior inspection, the whole system would have been jeopardized, resulting in unpredictable performance and frequent downtime.

In addition to getting new batteries field-ready, battery analyzers perform the important function of restoring weak batteries and weeding out the "dead wood." Weak batteries can often hide among their peers. But when the system is put to the test in an emergency, these nonperformers stick out like a sore thumb. It should be noted that battery analyzers are most effective in restoring nickel-based batteries. Lithium-based batteries lose capacity mostly due to aging, and such performance loss is nonreversible.

Organizations tend to postpone battery maintenance until a crisis situation develops. One fire brigade using two-way radios experienced chronic communication problems, especially during callouts lasting more than two hours. Although their radios functioned in the receive mode, they were not able to transmit, and firefighters were left unaware that their calls did not get through.

The fire brigade acquired a Cadex battery analyzer and all batteries were serviced through exercise and reconditioning methods. Those batteries that did not recover to a preset target capacity were replaced.

Shortly thereafter, the firefighters were summoned to a ten-hour call that demanded heavy radio traffic. To their astonishment, none of the two-way radios failed. The success of this flawless operation was credited to the excellent performance of their batteries. The following day, the captain of the fire brigade personally contacted the manufacturer of the battery analyzer and enthusiastically endorsed the use of the device.

Batteries placed on prolonged standby commonly fail when needed in an emergency. A Cadex representative was allowed to view the State Emergency Management Facility of a large U.S. city. In the fortified underground bunker, over one thousand batteries were kept in chargers. The green lights glowed, indicating that the batteries were ready at a moment's notice. The officer in charge stood erect and confidently said, "We are prepared for any emergency."

The representative then asked the officer to hand over a battery from the charger to check the state of health. Within seconds, the battery analyzer detected a fail condition. In an effort to make good, the officer grabbed another battery from the charger bank, but it failed, too. Subsequent batteries tested also failed.

Scenarios such as these are common. Political hurdles and lack of funding often make it difficult to solve such problems quickly. A maintenance program in which each battery is cycled on a monthly basis with a battery analyzer would prevent such a problem. In the meantime, the only thing the officer of the emergency facility can do is pray that no emergency will occur.

Another user group that relies heavily on batteries is the military. Defense organizations take great pride in employing the highest-quality and best-performing equipment. When it comes to rechargeable batteries, however, there are exceptions. The battery often escapes the scrutiny of a full military inspection and only its visual appearance is checked. Maintenance requirements are frequently ignored. Little effort is made in keeping track of the battery's state of health, cycle count, and age. Eventually, weak batteries get mixed with new ones and the system becomes unreliable. As a result, soldiers are carrying rocks instead of batteries. A battery maintenance program with battery analyzers keeps deadwood out of the arsenal.

Summary

Unlike individual battery users who know their batteries like a good friend, fleet users must share the batteries from a pool of unknown supply. While an individual user can detect even a slight reduction in runtime, fleet operators have no way of knowing the behavior or condition of the battery when pulling it from the charger. They are at the mercy of the battery. It's almost like playing Russian roulette.

Increasingly, fleet battery users are setting up battery maintenance programs. Such a plan exercises all batteries on a regular basis, reconditions those that fall below a set target capacity, and "weeds out" the dead wood.

Usually, batteries get serviced only when they no longer hold a charge or when the equipment is sent in for repair. As a result, battery-operated equipment becomes unreliable and battery-related failures occur too often. The loss of adequate battery power is as detrimental as any other malfunction in the system.

Cadex 7400 battery analyzer

The Cadex 7400 services NiCd,

Continued on page 55

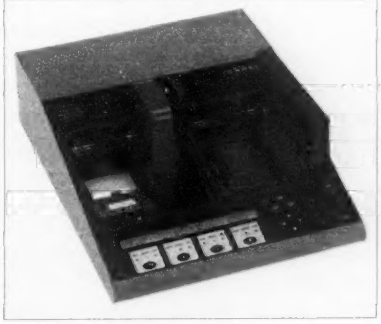

***Photo B.** Cadex 7400 battery analyzer.*

Eric Shalkhausser W9CI SK

The History of Ham Radio

Part 13 — Birth of the Wouff Hong.

On the lighter side of amateur radio, during the long winter nights there evolved within the fraternity a new phase of activity. It had its inception in the many curious, humorous, and indescribable stories under the pen name of The Old Man who now, through the lapse of time, has become a hallowed legend. The legend is now permanently memorialized in the Wouff Hong Story.

According to research, the ever-present references to the fabulous Wouff Hong came about like this:

In the days when amateur radio was in swaddling clothes, way back in about 1914, there emerged a personality known as the Old Man.

The Old Man

As reality would have it, this individual was, as all amateurs were and are to this day, afflicted with the sad but ever-present problem of raucous disturbances, be they man-made, nature-made, or even fabricated right within the shack of the beholder. This perpetual problem was known in the days of yore as "Rotten QRM." But to go on with the research.

Plagued in the very early days of wireless communication with such interference, driving sane but determined listeners (wishing to remain that way) to distraction, especially when the headphones were securely clamped over both ears, listening intently for what the Morse dots and dashes were meant to convey, there emerged the following effusive but clear and loud verbiage into print [the Old Man exclaiming]:

"Fellows [all excited and boiling over], fellows, this QRM business is getting my nanny — here it is midnight — I have smoked myself into a state of funk — the floor is covered with burnt matches — I am losing a perfectly good temper — there is no sign this will not continue all night long … How long do the radio bugs sit up at night anyway? — What are we going to do about this business? — When we heard some commercial station say QRM we had to look it up on the chart to see what it meant — Later we began talking to the fellow over on the other side of town, and then was born our amateur QRM.

"But when we have a fellow who has not written to his girl for a full twenty-four hours, and who positively must get the message to her over in Illinois, it becomes a serious matter to have someone else getting gay with the ether, especially when the latter has no conception of the existence of the word 'brevity.' The trouble is, the young squirts don't stop to think. Willy with his sputtering spark coil

8 Q S T January, 1917

Rotten QRM

By "The Old Man."

Say, fellows, here's the old man again This time he's all excited and boiling over. In fact he's so wild about some "Rotten" subject that he has fallen back to some queer dialect and shouts about "wouff hong's", "rettysnitches", and some disorder known to the trade as "ugerumf". What do all these mean? Better read the article and see. —Editor.

Fig. 1. Rotten QRM.

Reprinted from *73 Magazine for Radio Amateurs*, April 1981, where this was originally reprinted from *QCC News*, a publication of the Chicago Area Chapter of the QCWA.

Smoked himself into a state of funk.
Poor girl in Ill. who hasn't heard from her fellow in 24 hours.
Rubber band—Commercial tone.

Fig. 2. Three cartoon illustrations.

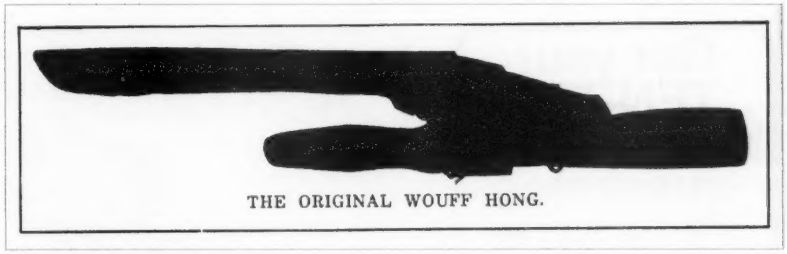

Fig. 3. The original Wouff Hong.

discharge sends out this hogwash — now listen to this …

"'Yes yes jst wyd glucky wait a mt muddy wouff hong bliftsky monkey motor.' We assume from this message that Glucky is being asked to wait a minute while Bliftsky seeks a wouff hong with which to wallop a monkey the next time the latter faces towards the motor. I do not think I know just exactly what a wouff hong is. Probably some piece of apparatus used in the southern states to beat monkeys with.

"It is this form of uninteresting 'conversation' which clutters up the air with QRM. Of what moment is it to the rest of the world that this fellow Bliftsky is going to smear somebody's monkey with a wouff hong? When anybody relapses into such a mental slop as to want to operate with a thing named a wouff hong, he ought to keep his trouble to himself and not compel all of us respectable amateurs to listen to his drool. To slave and slobber a lot of foolish twaddle like this when that poor girl in Illinois has not had a letter since yesterday is plain wicked.

"Or just cast a lingering look at this:

Continued on page 55

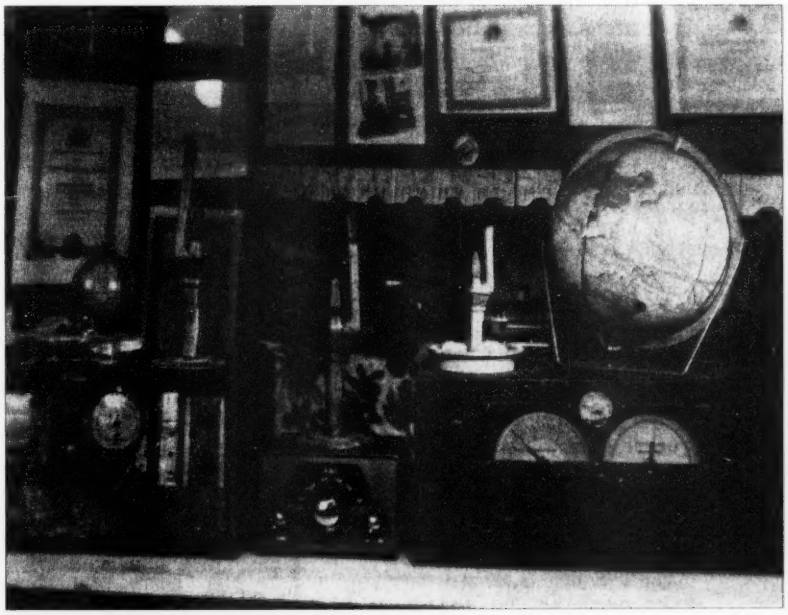

***Photo A.** Three Wouff Hongs decorate a ham shack.*

***Fig. 4.** WELL! WELL! WELL! LOOK WHO'S HERE. A picture of THE OLD MAN. It came in the mail, just like all his stories.*

CALENDAR EVENTS

Listings are free of charge as space permits. Please send us your Calendar Event two months in advance of the issue you want it to appear in. For example, if you want it to appear in the January issue, we should receive it by October 31. Provide a clear, concise summary of the essential details about your Calendar Event.

OCT 5

WARSAW, MO The Twin Lakes ARC will sponsor the Warsaw MO Hamfest Saturday, October 5th from 9 a.m. to 4 p.m., at the Warsaw Community Bldg., one block west of the square. Talk-in on 147.300 on the Warsaw rptr. Setup is at 5:30 a.m. Admission $2 at the gate. 8 ft. tables $10 each (hurry, only 30 available). Breakfast and lunch will be served on site. For more info call *Gene* at *660-438-8650*, or E-mail to *[gpo@advertisenet.com]*.

OCT 6

MEDINA, OH The Medina Two Meter Group will present the Medina Hamfest at the Medina County Career Center, 1101 W. Liberty St. (State Route 18) Medina OH 44256. This location is just 3 miles west on Route 18 from downtown Medina. Talk-in on 147.030(+). All indoor tables and spaces. Computer equipment, new and used ham gear, ARRL approved. Advance vendors tables $9 each (includes one admission ticket per table). Inside flea market space (includes one admission ticket per space) $7 each in advance. One flea market space is enough room for one 8 ft. table. Two spaces would equal 16 feet. Advance reservations must be received by 09/29/02. An SASE is required for return of tickets. All tables will be held until 9 a.m. the day of the show. Let us know if you have any personal requests. Please send your remittance to the *Medina Hamfest Committee, P.O. Box 452, Medina OH 44258*. Visit *[www.qsl.net/m2m]* for more information. For general questions about the hamfest contact *Mike N8TZY* at *330-273-1519* after 7 p.m., or E-mail *[n8tzy@m3net.net]*. For VE exam info call *Fred K8FH* at *440-236-3477*. Walk-ins are always welcome. Testing starts at 9 a.m.

OCT 12

BREMERTON, WA On Oct. 12th, 9 a.m. to 3 p.m., the North Kitsap ARC will host a Hamfest at President's Hall, Kitsap County Fair Grounds, NW corner of Fairgrounds Rd. at Nels Nelson Rd. Talk-in on 146.62(-) PL 103.5 WWRA rptr., or 146.53 simplex. Admission $5, 12 and under admitted free. New and used equipment. Tables $15 each (and one free admission) until 09/30/02; $20 each afterwards. Helpers for renters of personal tables (2 max) $4 each. Commercial spaces $30. Electrical power $2 per table. Contact *Russ Swank KI7PG, P.O. Box 2268, Silverdale WA 98383-2268*. Phone *360-697-6451*, or E-mail to *[nkarc@yahoo.com]*. Info available at *[www.silverlink.net/nkarc]*.

LAKE PLACID, NY The Northern New York Section Hamfest and Convention will be held at the Horse-Show Grounds on Route 73, adjacent to the Lake Placid Airport, Lake Placid NY. This ARRL Sanctioned event will be sponsored by the Amateur Radio Clubs of the Northern New York ARA. Vendor tables are $9, including one admission. Additional vendor staff is $2.50 per person. Free coffee or soft-drinks with vendor ID badge. For vendor reservations and advance tickets, contact *Tom Valosin WB2KLD, 117 Warrior Way, Middleburgh NY 12122*. Phone *518-827-4800* or E-mail *[valosin@midtel.net]*. Visit the NNYARA Web site at *[http://www.geocities.com/nnyara]*.

WASHINGTON TOWNSHIP, NJ The Bergen ARA will sponsor its Annual Fall Hamfest on Saturday October 12th, at the Westwood Regional Jr./Sr. High School, 701 Ridgewood Rd., Washington Township NJ. This is approximately 15 minutes from the GW Bridge and 5 minutes from Paramus NJ. Vendors arrive at 6 a.m. General admission 8 a.m. to 2 p.m. VE exams 8 a.m. to 10 a.m. only. DXCC card checking. Rain or shine. Indoor and outdoor spaces. Lots of parking for tailgating. Admission is $5 donation (non-ham family members free), and vendors $10 per space. Rest room facilities and refreshments available. For more information check the BARA Web site at *[www.bara.org]*, or contact *Jim Joyce K2ZO* at *[K2ZO@arrl.net]* or *201-664-6725*. Talk-in on 146.19/.79.

OCT 13

EAST LANSING, MI The Lansing Civil Defense Repeater Assn. and the Central Michigan ARC will sponsor a hamfair, 8 a.m. to 1 p.m. October 13th, at Lakeside Christian School, 7868 M78 Hwy., East Lansing MI. Admission $5 at the door. Trunk sales $10. Tables $12. Vendor setup at 5 a.m. Talk-in on 145.390(-) 100 Hz PL, and 146.520. Contact *Mike Rhew KC8DBP, 989-725-1853*, or E-mail *[kc8dbp@arrl.net]*. For info about VE exams, call *517-589-5263* or E-mail *[n8vys@voyager.net]*.

KALAMAZOO, MI The 20th Annual Kalamazoo Hamfest will be hosted on October 13th by the Kalamazoo ARC and the Southwest MI Amateur Radio Team. Vendor setup is at 6 a.m., doors open to the public at 8 a.m. Advance tickets $3, $4 at the door. Trunk Sales $5. For tickets/tables, send SASE to *Kalamazoo Hamfest, P.O. Box 555, Galesburg MI 49053*. E-mail to *[Hamfest@KalamazooHamRadio.com]*, with the Web site at *[http://www.kalamazoohamradio.com/hamfest]*.

WALLINGFORD, CT The Meriden ARC, Inc., will present the 10th Annual Nutmeg Hamfest & Computer Show, featuring the 2002 American Radio Relay League State Convention, Sunday October 13th, 9 a.m. to 3 p.m., rain or shine, at the Mountainside Special Event Facility, High Hill Rd., Wallingford CT. Exit 15 Rte. 91 (North or South), follow signs. Vendor setup starts at 6 a.m. Inside selling space $30 (booth space with 8 ft. table, and chair). If you reserve and pay in full before Sept. 13th, deduct $5. Outside spaces $20, one tailgate 30 ft. space. General admission is $7. Children under 12 admitted free, but must be accompanied by an adult at all times. Make checks payable to *Nutmeg Hamfest;* send payment to *Andy Purchia N1XXU, 116 Kensington Ave., Meriden CT 06451*. Phone *203-235-8440*. Proceeds from this event will help support public service, scholarship and civic activities. VE exams contact is *Joel Curneal N1JEO, 203-235-6932*. E-mail *[NutmegHamfest@qsl.net];* Web site *[www.qsl.net/nutmeghamfest]*.

OCT 19

GOLDEN, CO The Rocky Mountain Radio League, Inc., will hold its 2002 RMRL Hamfest October 19th, 8 a.m. to 2 p.m., at the Jefferson County Fairgrounds, 15200 W. 6th Ave., Golden CO. Directions: Take the Indiana exit from 6th Ave. Talkin on 144.62/145.22 MHz. Admission $5 per person, tables $10 in advance or at the door. VE exams, ARRL forum, refreshments, door prizes. Contact *Ron Rose NØMQJ, 303-985-8692*, or E-mail to *[n0mqj@attbi.com]*.

OCT 20

GODFREY, IL The Clark Radio Club Hamfest will be held at Clark Community College,

Godfrey IL. Talk-in on K9HAM 145.230. Indoor flea market tables $10, outdoor flea market space $5. Tickets $2 each or 3 for $5 in advance. $3 each or 2 for $5 at the door. Tables are $10 each, outside flea market spaces $5 each. For reservations call 618-254-9465, or E-mail *[n9fhh@exi.com]*. For tickets and info contact *C Radio Club, P.O. Box 553, Godfrey IL 62035;* or call *618-462-4212*. Talk-in on K9HAM 145.230 rptr. VE exams, all classes ARRL format. To pre-register, call *Rich Morgan KF9F* at *618-466-2306*. Pre-registration is not required for those testing for the "no code" license. Registration starts at 9:30 the day of testing, exams start 10 a.m. to 10:30 a.m. There is a $10 fee. Bring all papers. 605 forms will be furnished.

QUEENS, NY The Hall of Science ARC Hamfest will be held at the New York Hall of Science parking lot, Flushing Meadow Corona Park, 47-01 111th St., Queens NY. Doors open for vendors to set up at 7:30 a.m. Buyers admitted at 9 a.m. Free parking, door prizes, food and refreshments. VE exams at 10:00 a.m. Admission by donation, buyers $5, sellers $10 per space. Talk-in on 444.200 rptr. PL 136.5, or 146.52 simplex. Web site *[www.qsl.net/hosarc]*. For further info, call at night only: *Stephen Greenbaum WB2KDG 718-898-5599;* E-mail *[WB2KDG@Bigfoot. com]*. For VE exams info call *Lenny Menna W2LJM, 718-323-3464;* E-mail *[LMenna6568@ aol.com]*.

SELLERSVILLE, PA The RH Hill ARC will host a hamfest at Sellersville Fire House, Rt. 152, 5 miles south of Quakertown and 8 miles north of Montgomeryville. Talk-in on 145.31. VE exams 10 a.m. to 1 p.m., all classes. Bring documents! Indoor spaces $12 (table included), outdoor $6, bring tables. Admission $5. Call the Hamfest Hotline: *Linda Erdman, 2220 Hill Rd., Perkiomenville PA 18074*. Phone *215-679-5764*. Visit the Web site *[www.rfhill.ampr.org]*.

OCT 26

RICKREALL, OR Mid-Valley ARES will present its 8th annual "Swap-Toberfest" and Amateur Radio Emergency Services Convention. The Convention will be held on Saturday, Oct. 26th, at the Polk County Fairgrounds in Rickreall. Doors will be open for the convention from 9 a.m. to 3 p.m. the day of the event. Swap table setup will be from 6 p.m. to 8 p.m. Friday night, Oct. 25th; and at 7 a.m. on Saturday morning, Oct. 26th. Self-contained RV spaces available. Talk-in on the 146.86 rptr. PL 186.2. Features include swap tables, commercial dealers, meetings and seminars. Additionally, emergency communications vehicles will be on display from Marion and Polk County Emergency Management, Civil Air Patrol, American Red Cross, and others as available. For more info contact *Dean Davis KL7OR, 503-540-3270,* or E-mail to *[kl7or@arrl.net]*. To download a copy of the flyer and pre-registration form (or register on-line), surf the net for *[http://www.qsl.net/w7oem/swaptobe.html]*.

OCT 27

CANTON, OH The Massillon ARC will present their 42nd annual hamfest, "Hamfest 2002" at Stark County Fairgrounds, 305 Wertz Ave. NW. From I-77 N take the downtown exit, turn left (W) on W Tusc., turn right on Wertz to fairgrounds. From I-77 S, take 4th St. NW exit, turn right (W) into grounds. Setup at 6 a.m. Admission $5, under 12 free; 8 ft. tables with electricity $12. Handicap accessible. Indoors and heated. Free parking. Talk-in on 147.18(+). Tables contact is *Terry Russ N8ATZ, 3420 Briardale CR. NW, Massillon OH 44646*. Visit the Club Web site at *[www.qsl.net/w8np]*. There will be an auction at 10 a.m. 15% commission charged on all items sold. You may buy back your own items at no charge.

WESTMINSTER, MD The Carroll County ARC will hold its 13th Annual Mason-Dixon Computer & Hamfest 8 a.m. to 3 p.m. at the AG Center in Westminster MD. Vendor setup begins at 6 a.m. VE exams begin promptly at 9 a.m. Great food, and free radio checks. For more info visit [www.qis.net/~k3pzn], E-mail [k3pzn@qis.net]; or write CCARC, P.O. Box 2211, Westminster MD 21158. Donation $5, children under 12 free. Tailgate space $5 per 12 ft. space. Vendor and tailgating setup 6 a.m. General admission 8 a.m. 8 ft. tables inside. $12 per table, every 4th table free. Tables guaranteed only if reserved by Oct. 5th with full payment. No pay, no reservation. Mail to *Mason-Dixon Computer & Hamfest, P.O. Box 2211, Westminster MD 21158*. MD State law requires vendors to collect Sales tax. E-mail *[k3pzn@qis.net]*. VE exams, pre-registration required. Contact *Phil Karras KE3FL, 3305 Hampton Ct., Mt. Airy MD 21771*. Phone *301-831-5073;* E-mail *[ke3fl@juno.com]*. Testing will be conducted on the hamfest premises. On-site exam check-in begins promptly at 9 a.m. No admittance to exam room after 10 a.m. Required for VE exam: original FCC license plus one copy, two forms of ID, one with photo; any CSCEs; exam fee, $10 cash only.

NOV 1, 2

ODESSA, TX The West Texas ARC will host their 2002 Hamfest on Friday and Saturday, November 1st and 2nd, at the Holiday Inn Center, 6201 E. Hwy. 80, Odessa TX. Hamfest hours will be 5 p.m. to 9 p.m. on Friday, and 8 a.m. to 5 p.m. on Saturday. VE exams will be available. Plenty of free parking spaces. Admission $3, tables $10 with one free ticket per vendor. For more info contact *Craig Martindale W5BU, 1719 Rosewood, Odessa TX 79761*. Phone *915-366-4521* or E-mail to *[w5bu@arrl.net]*.

NOV 9

MONTGOMERY, AL The Montgomery ARC will host the 25th annual Montgomery Hamfest and Computer Show in Garrett Coliseum at the South Alabama State Fair grounds located on Federal Dr. in the Northeastern section of historic Montgomery. Admission is $5, free parking. Inside flea market set up 3 p.m. to 8 p.m. Friday evening, November 8th; and 6 a.m. to 8 a.m. November 9th. Doors open to the public from 9 a.m. to 3 p.m. CST. VE exams on site beginning at 8 a.m. Testing by CAVEC. Bring original and a copy of your current license, picture ID, and $3 fee. Talk-in on 146.24/.84, W4AP. Ragchew on 147.78/.18 with phone patch *up/#down, 449.50/444.50, and 449.45/444.45. Flea market reservations are required to assure tables. Tailgaters welcome at $2 per vehicle space. For more info write to *Hamfest Committee, c/o 7173 Timbermill Dr., Montgomery AL 36117-7405;* or phone *Phil* at *334-272-7980* after 5 p.m. CST. E-mail *[k4ozn@arrl.net]*. For late breaking news and events, visit *[http://jschool.troyst.edu/~w4ap/]*. 73

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home of The Chart on the Web

Sleeper Package Comes Awake

If you are like me, every now and then something comes along that looks good but you just can't seem to make it click. This happened to me with a program named PSK-PAL, which is, as you can tell by examining the name, obviously another PSK communications program.

There is a little history to this software. It showed up well over a year ago, and I have lost record of how I became aware of its existence. I downloaded it and it is unique in certain respects. One that stands out is the fact there are three receive panes and each has its own waterfall. Kinda fun.

The software always has been good on the receiving end, but I had problems getting it to drive the audio for transmit. I tried it in several computers, under different operating systems and corresponded with the author, Erik VK7AAB. I think I only identified one user over the air and I was not in contact with that ham to see how it worked for him, and Erik was at a loss. Obviously, it must have worked for him and others in his neck of the woods.

I put the PSK-PAL on a back-burner and never quite forgot about it. In the ensuing months, I found a truly great SSTV editor by Erik, SSTV-PAL, that works flawlessly and has been the subject of a couple of columns here.

The luck of the draw seemed to prevail recently as I was getting the Web site links corrected and I ran across a very recent modification for PSK-PAL on Erik's FTP site. I should spend a few lines here and explain something about the URL listed for PSK-PAL and SSTV-PAL.

This site is a strictly no-frills directory of the files available for download by you as an interested ham. I am sure when you bring up a page that says simply, "Directory of /~crac" you are sure you have hit the wrong key somewhere. Not so, you are really there. The available files are the product of the "genius at work" and are ready to be downloaded and enjoyed.

The rest of the story

That is just what I did. The original zipped full version of PSK-PAL is about a 1.6 megabyte file. The latest modification dated July 4, 2002, is a little less than a 0.25 Mb download. Very quick, and I installed the two files that appeared after the unzip in the PSK-PAL directory. They were replacements for two existing files.

All that was left was to boot the program and check the setup. The program uses the PTT which setting agreed with the comm port into which the PTT circuit is plugged. I thought I was up and running. Clicking transmit seemed to work. The rig keyed up, but I needed to tweak the Windows sound driver. I am still behind the times. That is, I am using the cables direct from the soundcard to the accessory jack on the back of the Icom rig. Those of you using the commercial interfaces need only adjust a knob to set the ALC level.

Along with this is a nice little "Set Transmit Output" function found in the Soundcard pull-down menu. Clicking here displays a slider over the TX button on the right of the monitor display. You can watch your ALC and power meter while you adjust here and then click "Done," and the setting remains for subsequent boot-ups. I still had to revert to the Windows sound driver which does not always stay where I put it, but that is just a local problem. If I ever get serious about this stuff I will … cure that?

Anyway, bingo! The transmit problem was cured. I hunted around and found a contact and the report was very good. Then I went back and started reading the Help file. This program has some excellent features that may just entice you to give it a try.

To begin, I found I had not edited the macros to fit my needs. Easy chore, right click the macro buttons and edit. Everything you need to know is available in the edit screen. Then I discovered a built-in log feature. As the Help file indicates, PSK-PAL is intended for casual ragchewing and this means the log conforms to the no-nonsense, non-contest principles. However, you will find it is quite intuitive. I have no reason to believe the log can be exported into any other log, but that is not something I would hold against the software. Most casual hams don't require such refinements.

Speaking of casual ragchewing, that is my mainstay. It is not unusual for me to make a contact that lasts in excess of a half hour. There is an exception. This is being written in midsummer and the paths are not holding up for long transmissions, but if the path does hold up then there can be a lot of short bursts of really important info. Nice thing about the digital modes: They do hang in far better under marginal conditions than phone.

One of the novel things I found was the ease in swapping between the three receive panes. What always makes me take a deep breath when using a program with more than the "main" receive display is what to do when I spot a CQ on one of the other panes. Not a problem here.

I found two buttons labeled "Use Ch1" and "Use Ch2". What you do is simply click one of these buttons and the swap of text as well as the waterfall trace selected takes place. You are ready to give that fellow a call just that easily. That is fun and refreshing.

I also found that, even with my late model soundcard, that seems to get me in trouble "chasing" signals often as not, every QSO turnover was almost exactly on frequency, and no complaints from the other end. I did notice a feature that had me wondering for a minute, speaking of tuning. I found that two signals with a space of perhaps 70 Hz between offered a tuning problem. The program would "home-in" on the stronger signal.

A trip to the AFC pull-down revealed a simple solution for this phenomenon. The

AFC width is selectable. I like to have a program follow a wandering signal most of the time. But you can have this by choice. You are afforded 10 Hz, 50 Hz, and 100 Hz. I changed it from 100 Hz to 50 Hz and seemed to gain the best of both worlds. It would still follow straying signals as well as allow tuning to the weaker signal I wished to track.

PSK-PAL is a lot of fun to use, not only because it is different, but you can get the feel of what the ham was thinking when he sat down to write something that fit his operating style. He has answered some of the needs by using approaches not found elsewhere. When you get a chance, give it a try.

The Chart on the Web

Many of you have responded favorably to the ease of use of The Chart since it is on the Web. Change comes slowly. After two months, I realized a notation belongs in the heading to this column. But, even so, you were finding the Web site just fine.

The convenience factor is the part that is most worth the effort to get it in place. The typing errors are eliminated. Just simply decipher the short definitions I have given and click, you are on your way. Glad I did it, or should I say, "I am doing it?" It is one of those projects that goes on for a long time. To be honest, I think I had the links organized and working just in the nick of time, less than a week before the August issue showed up on your doorstep.

Anyway, all that aside, I ran across some very good ideas while getting the online Chart in order. Some of it came while testing the links (Gee, that is quicker at this end also). And some came as I was comparing the other version of The Chart on the WA2HNG site. Bob had very graciously included The Chart in his Web site for the better part of a year while I procrastinated in setting this one up.

Bob has some links he added that are just plain fascinating. And, of course, I have been letting some of the new developments pass me by. So, I will start playing catch-up.

As I was looking through the links, checking to make certain they worked, I ran across several interesting ideas in need of discussion. Not the least of these was the PSK-PAL modification that is discussed at the beginning of the column this month.

There is so much information available for the ham on the Internet that it almost defies organization. The reason I say that is, first, each person is an individual with his own tastes. Secondly, though we are simply looking at a small segment of what is available, a lot of information overlaps.

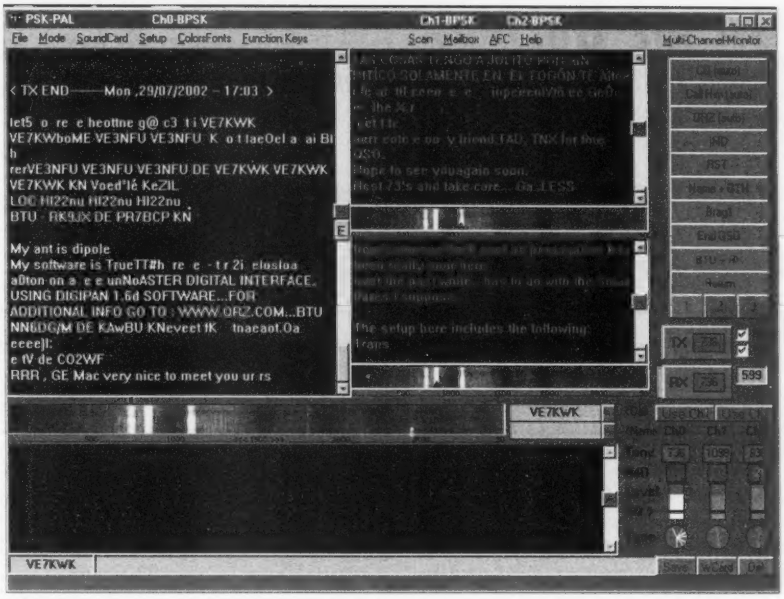

Fig. 1. PSK-PAL — This is a screenshot where I actually have it tuned to and decoding 3 different PSK signals. Note the separate waterfalls. The macros are easily edited after a right-click. And there are 3 macro sets selectable with the boxes just below the buttons. There are hot-keys for Xmit and Rcve and the function keys also activate the macros which can include Xmit and Rcve or you may simply click the TX and RX boxes. The Help file is to-the-point and thorough. The program has tool-tips you can turn on so you can get a quick run-down on any unfamiliar button or feature when you touch it with your mouse cursor. You can stop the auto-scroll of the main receive pane by clicking the "E" halfway up the right side, allowing you to take a no-hassle look back at previous information. There are individual IMD readings for all 3 received signals. The "casual" log line at the bottom allows you to type in whatever you desire and it all reappears when you type in the callsign next time. Not a contest program, but a nice intuitive piece of software for relaxed operators; and did I mention FREE?

I find, even with the multitude of excellent search engines hovering out there, it is difficult to find precisely what we are looking for every time. So I settled back to look at just The Chart and realized I have not as yet put everything in alphabetical order. A person would think that would be a first consideration. Of course, this listing had its beginning about five years ago. A pretty lame excuse, but it will have to suffice.

There are some highly educational ham Web sites. One of the first that comes to mind is by Murray Greenman ZL1BPU, which has a link in The Chart and is listed with MFSK. Now, that URL is top-notch in my opinion because it really tells as much of the whole story as most of us care to digest in a sitting. And there are plenty of references to available software to go along with the history and development lesson.

Other sites come to mind. I think I have a lot of software download sites listed. The G3VFP site by Dave has even more. I often check there to see if I am up-to-date.

Linux pops up with a surprise

Now I have to tell a little story about the discovery of a new (to me) ham Web site. I answered a CQ the other evening and here was a fellow casually mentioning his setup which was running on Linux with TWPSK software. Plus, he added that he shared authorship in the program he was using. I think the reference was "homebrew software."

As you can imagine, that really got my attention. Of course the path was only so-so as usual of late. But he did send his Web site. Naturally, Murphy's Law took effect and I got it wrong and, in the process of running a search for his callsign on the Web, I came up with an excellent informative Web site.

A little catch here: The Web site's primary language is German. That's OK by me, but my ability to interpret diminishes quickly after a few stock phrases. However, there is a large portion of it in English, so I persevered. Wouldn't you know there

Continued on page 56

On the Go

Mobile, Portable and Emergency Operation

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Balancing Act

The key to amateur radio, in my opinion, depends upon the ability to maintain a balance. This balance may be among different modes of communication, different types of communications, or perhaps how we approach the hobby.

Sometimes, in order to balance different issues, it may be helpful to go back to the basics. Part 97, the regulations that govern amateur radio, includes the following, which defines the purposes of amateur radio:

"The rules and regulations in this Part are designed to provide an Amateur Radio Service having a fundamental purpose as expressed in the following principles:

(a) Recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications.

(b) Continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art.

(c) Encouragement and improvement of the amateur service through rules which provide for advancing skills in both the communications and technical phases of the art.

(d) Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.

(e) Continuation and extension of the amateur's unique ability to enhance international goodwill."

(a) Recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications.

It has now been over a year since the terrorist attacks on the World Trade Center and the Pentagon. Many of us have been concentrating on preparing to provide support for whatever emergency or disaster may come next. Even if there are no further attacks, there will always be something where our skills are needed — an industrial accident or a natural disaster. The ARRL recently received funding from the federal government for training amateurs in emergency communications. The funding is important, but even more important is that the federal government has acknowledged the importance of the role of amateur radio.

I for one will never underplay the importance of disaster support, but there are other reasons for the Amateur Radio Service to exist, and it is equally important that we not neglect these other areas as well. When a military unit is placed on high alert, the commanding officer knows that the crew cannot stay at such a level for very long or they will lose focus or the ability to respond. A wise or experienced commander will stand down his crew when possible so that when a heightened level is required they will be focused and attentive. We need to balance our public service responsibility with the other aspects of the hobby as well as balancing our responsibility to serve with our privilege to enjoy the hobby.

(b) Continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art.

It's interesting that the regulations refer to the "art" and not the "science" or "technology." This seems to focus on what the service can do and what it can add to society. Art alludes to enjoyment and even entertainment, and this is an important attribute. Public buildings, monuments to our heroes, and public parks all rely on art to make a statement and support the primary function. CW, for example, has gone from the only mode of communications available to amateurs to one of many. It has, in many respects, become more of an art enjoyed by many amateurs.

(c) Encouragement and improvement of the Amateur Service through rules which provide for advancing skills in both the communications and technical phases of the art.

Similar emphasis seems to be placed on both communications skill and technical skill. I notice here that the skills for both communications and technical are stated. To me this says that our ability to communicate is every bit as important as our ability to construct devices. If you remember your first time as a net control operator, you can probably remember how your skills needed advancing. Everyone's does! Both aspects of the hobby are significant and important to its overall success and growth.

(d) Expansion of the existing reservoir within the Amateur Radio Service of trained operators, technicians, and electronics experts.

Many times people interpret this as referring to a pool of talented people who can be drafted or otherwise assimilated into the military. While this may have been true at one time, it is not directly stated. Today, a pool of trained people may be needed more in support of homeland security than in uniform. Personally, I believe that this section specifically does not address where or how these people may be needed so that such a pool will be available regardless of what need materializes. It's kind of like money in the bank. If I put some money away for a rainy day, I am tacitly admitting that I don't know what emergency I expect to face. I believe that we need a pool of trained operators, technicians, and electronics experts, but that the reason should not be defined.

It is important to notice technical aspect is mentioned in both (c) and (d), so those among us who point to the importance of the technical aspects of the hobby do have

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HAMSATS

Amateur Radio Via Satellites

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AMSAT Meeting Announced

It's that time again. AMSAT (The Radio Amateur Satellite Corporation) has announced that the 20th Space Symposium and AMSAT-NA Annual meeting is to be held November 7–11, 2002, in Fort Worth, Texas.

Every year, AMSAT members and satellite enthusiasts get together to share information and learn from others. The AMSAT Symposium and Annual Meeting moves to a new site every year. This time it is in southwest Fort Worth near the Lockheed Martin Aeronautics Company. Previous meetings have been held in Los Angeles, California; Portland, Maine; and many points in between. This year's event will chronicle past, present, and future amateur-radio satellite technology developments with some fun extras.

If you have not attended an AMSAT event in the past, make plans not to miss this one. While the schedule shows activities from November 7th through the 11th, the most important days will be Friday, November 8th, and Saturday, November 9th.

These two days are for the presentations and talks. Topics to be covered include operating methods, antenna design, spacecraft design and construction, status of current missions, proposed projects, digital techniques, telemetry studies and microwave systems. It is more information packed into two days than anyone could assimilate. Fortunately, the papers and presentations are also included in the Symposium Proceedings, a multihundred-page document that is included in the registration cost. Registration before October 16th is $30, but is $35 after October 16th. The price at the door is $40.

Following two days of information overload, there will be a short break before the annual meeting and social activities commence. At the general meeting, updates on the financial status of the organization will be presented, in addition to a review of project status. The meeting concludes with a question and answer session with all AMSAT officers and directors present. It's a great opportunity for members to ask hard questions and get direct answers.

The AMSAT banquet is always excellent. In addition to a very affordable $30 cost, there will be a keynote speaker to provide yet another talk, but this time on a topic that works for all attending, including those who are not hams or satellite chasers. Dress is usually more formal, with sports jackets, and even a few suits.

Then there are the awards presentations and prize drawings. The awards recognize those who have been distinguished volunteers during the past year, and also include a plaque for the first-place winner of the AMSAT Field Day competition. And then there are the prizes. It's always a great selection of hardware, software, and books that all hamsat chasers appreciate. After the grand prize ticket is drawn, it's time for a night's rest before the Sunday events.

Thursday, November 7th is reserved for a surplus electronics store tour. Maps, addresses, and directions will be provided for those who wish to participate. Thursday is also a day for antenna range and preamp testing.

A tour of the Lockheed Martin Aeronautics Company is scheduled for Sunday, November 10th. This promises to be an exciting event that many Symposium attendees will attend. For early risers there will be a Field Ops breakfast for current and future AMSAT Area Coordinators. Later in the day, the AMSAT Board of Directors meeting will begin.

While most of the Board meeting is open to all, there will be at least one closed session for financial discussions, usually associated with salaries and contracts. The meeting will break in the late evening and start again early on Monday, November

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***Photo A.** At a hamfest in Austin, Texas, the AMSAT Symposium chairman for 2002, Keith Pugh W5IU, draws a crowd for a UO-14 satellite pass.*

Photo B. *Keith made several excellent contacts with 5 watts to a handheld dual-band yagi via UO-14.*

HAMSATS

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11th. Sometime in the late afternoon, it ends.

Don't miss the 2002 AMSAT Space Symposium and Annual Meeting. Arrangements have been made with AmeriSuites of Fort Worth for special rates. Details on how to register for the event, reserve a room, and arrange transportation are on the Internet at [http://www.edtexas.com/amsat/]. AMSAT VP of Operations Keith Pugh W5IU is the Symposium Chairman this year. I'll see you in Fort Worth!

In Germany and England

AMSAT-NA is not the only organization to hold yearly meetings with papers, presentations, and demonstrations. Two of the more prominent overseas groups with gatherings in July, 2002, were AMSAT-DL in Germany and AMSAT-UK in England.

The German group has announced that they have decided to go ahead with two new spacecraft, AMSAT-Phase 3-E and AMSAT-Phase 5-A. The Phase 3-E spacecraft is to be a continuation of the high-orbit, long-life satellite program. Work has begun on models and the basic spacecraft bus. Frequencies to be used range from 145 MHz through 10 GHz. Design details are expected to be finalized this year, with a launch in 2005.

The Phase 5-A program is far more ambitious, and expensive. Based on an AMSAT-DL membership survey, and the goals of the German hamsat builders, the Phase 5-A spacecraft is to be a Mars probe. Many of the systems on AO-40 proved to be sufficient to the task of a mission to Mars. AMSAT-DL now plans to do just that — GO TO MARS. The spacecraft will likely be launched by Arianespace from French Guiana, and will not only carry scientific experiments, but also some small payloads to be released toward the Martian surface after the main payload has achieved orbit around the planet. Can it really be done? Suitable launch windows to Mars exist in 2007 and 2009. Check the Web sites [http://www.amsat-dl.org/p3e/towards-p3e.pdf] and [http://www.amsat-dl.org/p5a/p5a-to-mars.pdf] for more on these new projects.

Later in July, over 90 enthusiasts from 16 countries attended the AMSAT-UK Colloquium in Surrey, England. The AMSAT-DL projects were officially announced for the first time at the colloquium, to the delight of many and the skepticism of some. Activities in Surrey included presentations, antenna testing, barbecue by the lake, a tour of the University of Surrey satellite clean room, and live firings of prototype satellite propulsion systems. A new dish antenna for data collection and satellite control has recently been installed at the University. Ray Soifer W2RS, AMSAT-NA VP of International Affairs, worked with G7HIA to demonstrate trans-Atlantic contacts via UoSAT OSCAR-14 using portable gear. Copies of the AMSAT-UK proceedings are usually available in both paper and electronic formats. Check [http://www.uk.amsat.org] for details. 73

Photo C. *The University of Surrey has a new dish for S-band hamsat operations, on a gunship mount. (K5OE photo)*

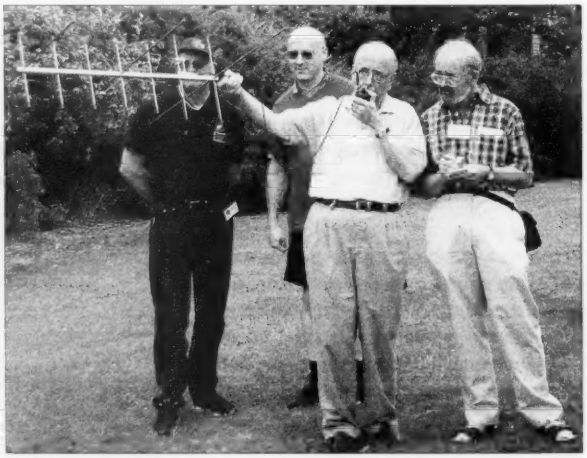

Photo D. *AMSAT VP of International Affairs, Ray Soifer W2RS, made trans-Atlantic contacts via UO-14 while at the AMSAT-UK Colloquium in Surrey, England. (K5OE photo)*

Above & Beyond

VHF and Above Operation

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Coaxial Test Devices

Last month we covered the application of coaxial relays and discussed some attributes and faults of particular connectors. As far as most test equipment is concerned, coaxial connector use varies greatly. However, clues about the use of BNC and UHF connectors at microwave are very limited, especially above 1 GHz.

Most notably displayed in a lot of amateur microwave workbenches demonstrating use of an "N" connector is the HP-432 series of power meters. The 432 power meter is a workhorse on my test bench. It is limited in power range from minus 20 dBm to plus 10 dBm (maximum). Frequency-wise it is rated from 0.1 to 12.4 GHz, with its thermistor power head a 478A which is fitted with a coaxial "N" connector. As a great commercial piece of test equipment, it demonstrates confidence in microwave operation for the "N" connector.

There are better connectors, such as the APC-7 connector, which is a genderless, constant impedance connector. What is meant by constant impedance is that SWR through the connector measures like the connector was not there, mimicking a section of coax cable. The "N" connector consisting of a pin and socket create a small but manageable impedance irregularity. This is created by the small diameter changes in the center conductor to outer diameter ratio, i.e., the pin and socket. While the APC-7 connector is quite expensive, it offers near perfection in connectors construction, maintaining the center pin's exact diameter. It is used primarily in high end test instrumentation. The APC-7 is kind of like a connector to test how good an "N" connector is performing.

Looking at my coax adapter and test adjunct box, only a few instruments and test adapters use the APC-7 connectors. About 90 per cent of my devices use the workhorse "N" connector. Power splitters, directional couplers, frequency meters, sweep generators, mixers, detectors, attenuators, terminations, coax relays, microwave transitions, and plain old coax cable to name a few. In general, they're quite prevalent in test devices. Did you ever notice that for VHF use the BNC and UHF connectors abound, but for 450 MHz operation on some equipment the "N" connector is used?

Let's examine the "N" connector and the directional coupler, for instance. One application is testing power amplifiers to reduce power to an RF detector like the HP-478A power head (whose maximum RF input power should not exceed +10 dBm). (A suitable power attenuator could be used to make the measurement.) However, if you do not have, say, a 20 dB attenuator rated at 50 watts, what do you do? The answer is to use a directional coupler and accompanying attenuator to bring expected levels to less than +10 dBm maximum of the power meter thermistor head. Directional couplers can exhibit very high power capabilities and come in various dB levels (normally 10, 20, and 30 dB reduction between source and coupler output).

This means that using a coupler rated for the frequency of test, with 30 dB of coupled loss from directional coupler RF input to coupler output, reduces a 10 watt signal to +10 dBm as measured on a power meter

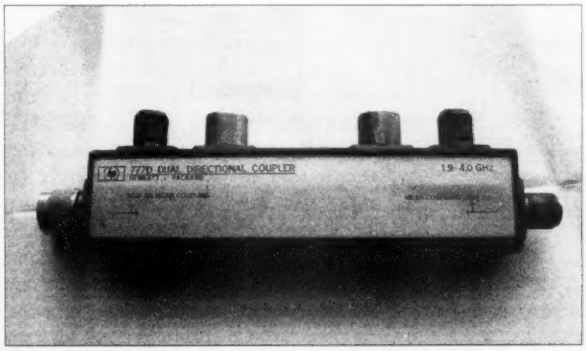

Photo A. *Directional coupler rated for frequency of 1.9 to 4.0 GHz with input and output coupled ports a HP-777D 20 dB coupler. Not calibrated at 1296 MHz but measurements produced very acceptable results. I would highly recommend its use at 1296 MHz. Manufactured by Hewlett Packard.*

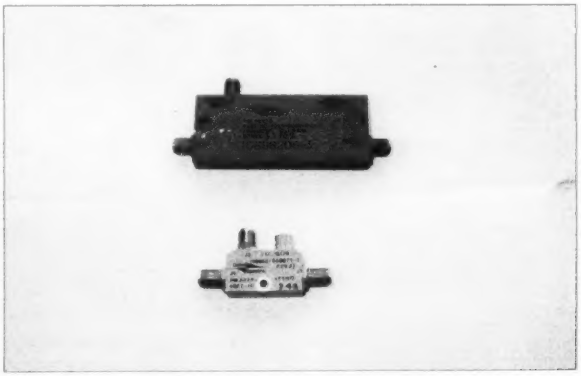

Photo B. *Smaller SMA coaxial couplers. Top coupler, 20 dBm Omni-Spectra 1 GHz to 1.5 GHz coupler used for 1296 MHz antenna evaluation. Bottom of photo, very small 2 to 5 GHz 10 dB coupler. Manufactured by Omni-Spectra.*

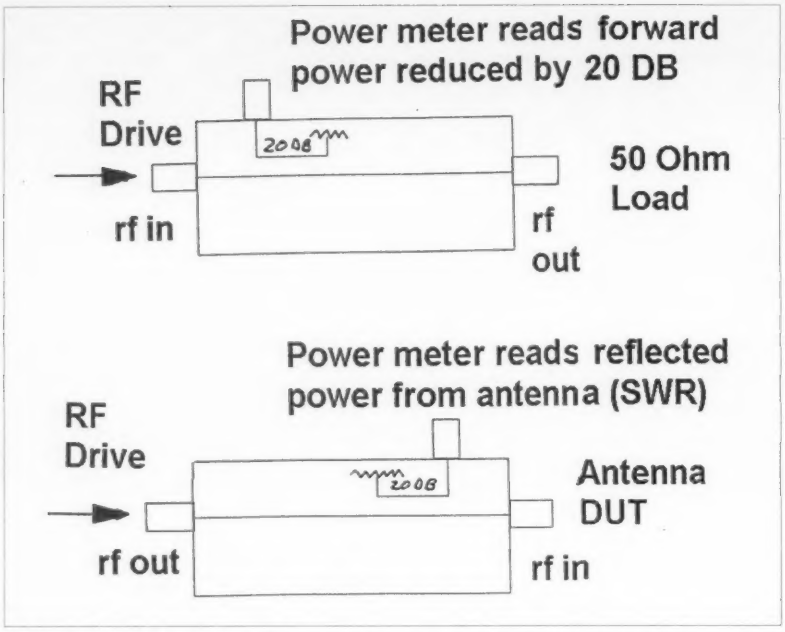

Fig. 1. *Drawing showing a 20 dB directional coupler (**Photo B** top) depicting direct coax and coupled coax ports and terminations on far end of coupled port. Note use on forward power direction of coupler compared to reversing coupler in circuit and using directional coupler (reversed from forward power measurements) for antenna SWR/return loss measurements.*

(10 watts = +40 dBm). A directional coupler is essentially a loosely coupled section of coax sampling RF from a nearby RF section of coax. The main input is a direct connection to the main output port with almost no loss at all, a direct coaxial connection, with a short slit in the coax shield. The sampling coax butts up to this slit with a matching slit in its shield to allow sampling coupling. The amount of coupling depends on the length and width of the slit. Power capabilities of this arrangement are quite high, not a problem for high power applications.

If your directional coupler has three ports, RF in, RF out, and coupled output, then the coupled output only looks at power so many dB down from RF input — 20 dB in the example above. It is not affected on reflected power from the output because it is directionalized and only looking at forward power. Reflected power is being dissipated in a 50 ohm termination resistor internal to the coupler on the far end of the coupled sample coax line. This is a very important observation to remember. Forward power is reduced in power by the loss of the coupled output on a three port directional coupler and is not affected by reflected RF due to a mismatch (high SWR or poor return loss).

A safe method to measure a transmitter's power level is to place an additional attenuator of at least 10 or 20 dB on the coupler output to not overpower the 478 power meter head. In this case, 10 watts input to the 30 dB coupler, plus, say, 10 dB of added attenuator for safety's sake, would produce zero as read on the microwave power meter. Remember 10 watts = +40 dB, minus 30 dB for the coupler and 10 dB for the attenuator = zero dBm.

With the same setup, if you read -3 dB, then the device you are measuring is putting out 5 watts of power. A change of 3 dB either positive or negative doubles output power or cuts it in half — it works both ways. I like to think that my 2-meter HT puts out 2 watts, as advertised, on high power. That's +33 dBm, subtract 3 dB and that's 1 watt. Work it out as +40 is 10 watts, subtract 10 dB and that's 1 watt. Double 1 watt (+3 dB) and that's 2 watts. Going backwards, +40 = 10 watts, minus 3 dB = +37 = 5 watts, minus 3 dB = +34 or 2.5 watts, and so on.

What a nosebleed, but essential thinking for test equipment setup so that you do not overpower a delicate power meter thermistor. It's always a good safe trick to use more attenuation when unsure what you are going to measure. You can always reduce attenuation easily, but it's too late when overpowering a thermistor mount and stressing it with too much power.

The importance of the numbers game and related powers expressed is because it is important to figure out what power you need to have at each portion of a test setup vs. going and making an error and blowing up a very expensive power meter thermistor head. They're very accurate for power measurements and very fragile and susceptible to overload power. Normal maximum power to not exceed is +10 dBm (that's 10 MILLIWATTS).

A little homework math. Assuming you want to measure a 50 watt transmitter using a 30 dB coupler, what level is 50 watts? By reducing the level with a 30 dB coupler, what level would you expect on the output of the coupler after 30 dB of attenuation? The answers are not hard, remember the rule: 1 watt = +30 dBm, add 10 dB (now 40 dB), power is 10 watts. Add another 10 dB (40 + 10) = 50 dB, power is 100 watts. To figure 50 watts level in dB, subtract 3 dB

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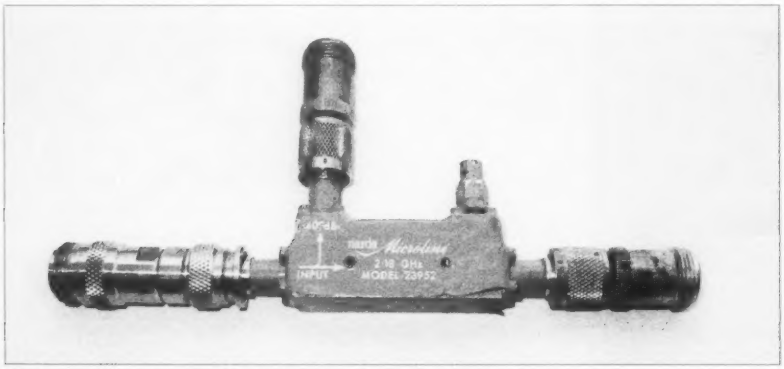

Photo C. *A directional coupler in my collection that seems to serve the entire microwave region from 2 to 18 GHz. I tried it at 1296 and obtained similar results as with the units in **Photos A** and **C**. At 5 and 10 GHz it performed just as well and as a 40 dB coupler, so with a signal generator as a signal source a sensitive power meter is required or a higher power transmitter must be used as the signal source.*

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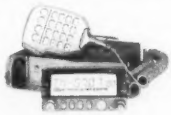

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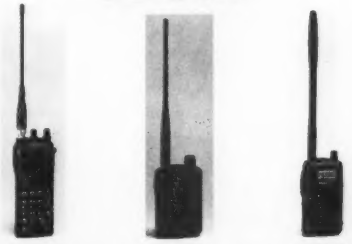

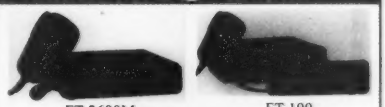

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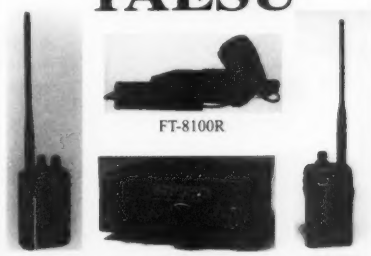

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Foxhunting is a "Novel" Idea

When I can't be out hunting hidden transmitters, the next best thing is to be reading about it. Maybe you feel that way too. After all, you're reading about it now!

Readers of "Homing In" learn the latest in radio direction finding (RDF) technology, plus news of local and international "foxhunting" events. But I've found that some of my most popular columns have featured unusual tales of actual hunts. It isn't a big stretch to go from ham radio T-hunting "war stories" to the fictional use of RDF by Hollywood.

We've all seen classic movies and TV shows where the good guys hide a transmitter on the bad guys' car and tail them to their hideaway. I think one of the first was "White Heat" from 1949. A police officer infiltrates a team of gangsters led by James Cagney. He constructs an emergency beacon transmitter out of a radio receiver. FCC agents with rotating loop antennas on their sedans relay their bearings to headquarters, where they are triangulated on a giant map of the Los Angeles basin. Check it out next time you visit the video store.

Murder for a fox

Just a couple of weeks ago, I read an Internet posting by Paul Gruettner WB9ODQ. I know Paul as an accomplished RDF contester who has won plenty of mobile T-hunts, plus an on-foot hunt at the Dayton Hamvention (**Photo A**). WB9ODQ was writing to promote a just-released novel by his wife Rebecca KB9LFW, that features RDF prominently in the plot. *The Fox* is published by Xlibris, a partner of Random House Ventures (**Photos B** and **C**).

Xlibris is an "on demand" publisher, which means that books are not printed until the customer's or bookstore's order is received. I went to the Xlibris Web site and discovered that this book is available both in the usual paper form and as an "electronic book." With my column deadline coming closer, I decided to try the e-book. It was cheaper (only $8 compared to $21.24 for paperback) and I would have it within a day with no shipping charges.[1]

I gave the Xlibris site my credit card information and a few hours later a 1.5 Meg PDF file appeared in my E-mail. This was my first experience with e-books and it took a while to get used to a totally on-screen experience. It looks just like a regular book, with 422 pages in all, including a cover page, dedication page, and Author's Note. But you can only read it on a computer.

Photo A. *Remember this "Homing In" photo from the 1999 Dayton Hamvention? Paul Gruettner WB9ODQ (at left) is accepting a new 6-meter transceiver for his performance in the 16-fox all-on-foot hunt. Now his wife has authored a novel that features ham radio and foxhunting.*

With an e-book, you can't put a QSL card between the pages for a bookmark and toss it in the car to read in the waiting room while your new tires are being installed. You can't print out any of it, because the file is encrypted to prevent that. You can't underline the best parts. But you can read it on any computer you own, if the machine has the free Adobe Acrobat™ Reader software installed.

WB9ODQ is a professional electronic engineer who works at an architectural firm, performing power system design for hospitals. According to Rebecca, "He's been in Amateur Radio since he was in high school. We met in college in 1976 and on our second date he said, 'Hey baby, let's go on a foxhunt!' I went on it and I was hooked. I was radio-shy for a long time but finally got my Tech license."

WB9ODQ and KB9LFW still go transmitter hunting when they can. "I do the co-piloting, Paul drives and I turn the antenna," says Rebecca. "When it comes time to get out of the car in the mud and mosquitoes, I let Paul do that. Some of the hunters here have doppler sets, but most prefer the classic 4-element quad on a rotating mount."

Paul's career has taken the couple from Milwaukee to southern California, to Nashville, and back to Milwaukee, with plenty of T-hunting along the way. "That's the nice thing about ham radio, you meet the nicest people," KB9LFW declares. "When we came back, I got on the local repeater and the same folks were there. It's as if I never left."

Bearings and visions

Rebecca drew heavily on her experiences in California and on transmitter hunts for her novel. "It's a murder mystery whose heroine is a ham operator interested in

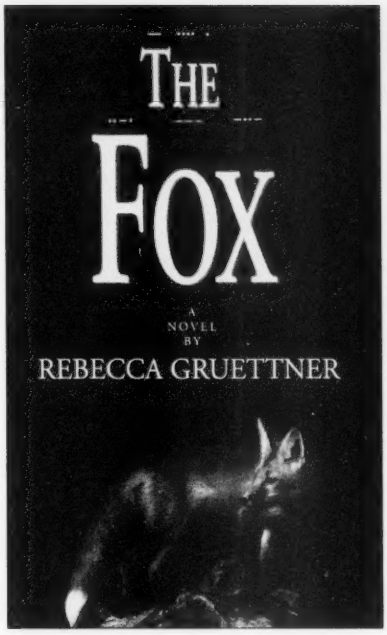

Photo B. *Cover of* The Fox. *(Image courtesy of KB9LFW)*

foxhunting," she says. "Yeah, we write what we know about. Initially, my intended audience was fiction murder-mystery readers. It was Paul who suggested that maybe foxhunters would also get a kick from reading it."

I don't think I'm giving anything away by revealing that not only is the heroine a ham, but so are several other important characters, including the chief suspect in the murder investigation. But it's not the usual "ham hero saves the day" story. The electronics industry is also represented, probably because Rebecca has had a career in Quality Management. I was surprised that all the engineering companies in her novel are well managed and professionally run. Dilbert simply wouldn't understand this.

Though there is action-packed foxhunting in this book, there is much more psychic direction finding than radio direction finding. According to KB9LFW, "I believe we all have some intuitive sense. You know, like when we sense someone watching us. We're definitely picking up something somehow. Sometimes we're more attuned to this sense than at other times, depending on distractions.

She continues, "I've often wondered what it would be like to have a finely tuned sixth sense where I could receive psychic information via some cosmic wave, similar to a transceiver tuning in to the radio signals. My mind went into overdrive one day when I started writing my novel. I came up with the idea that maybe a psychic's sixth sense could possibly work on this principle."

Hmmm, maybe if I had this heroine's psychic abilities, I'd win more T-hunts! For me, the juxtaposition of psychic experiences and true-to-life electronic science in *The Fox* was hard to reconcile. But for as little as eight bucks you can read it for yourself and decide if it works for you. There's plenty of action and a little romance in its 55 chapters, plus an interesting surprise at the end.

If you want the paper or hard-backed version, check your local Barnes and Noble store, which should be able to get it in three to four days. Rebecca says that mail-order from the Xlibris site takes considerably longer.

One more caution: *The Fox* is for adults. If it were a movie, I would have to give it an R rating. If you're looking for RDF fiction for all ages, read on.

T-Hunting hooked me early

Everybody says it: "We need more young people in ham radio." The best way to recruit people of any age into ham radio is to show them that it's fun and exciting. To induce them to study for a ham ticket, we must appeal to their natural sense of adventure and competitiveness. What better ham activity is there for this than a hidden transmitter hunt? Perhaps that's why RDF has been featured in Amateur Radio fiction for youth by several authors.

At age 10, I liked electronics and shortwave listening, but I knew little about Amateur Radio. One day in the school library, I found *SOS At Midnight*, by Walker

Photo C. *Rebecca Gruettner KB9LFW, author of* The Fox. *(Photo courtesy of KB9LFW)*

Tompkins K6ATX (**Photo D**). By the time I finished reading its 150 pages of suspense and intrigue involving high school hams, I knew I had to get my ham radio license.

In the same library, I found Tompkins' second ham radio novel, *CQ Ghost Ship*. In it, principal character Tommy Rockford K6ATX and a new Novice make an amazing discovery on a Saturday morning hidden transmitter hunt in southwest Washington state. That was enough to make me start badgering the leaders of my local radio club

Continued on page 58

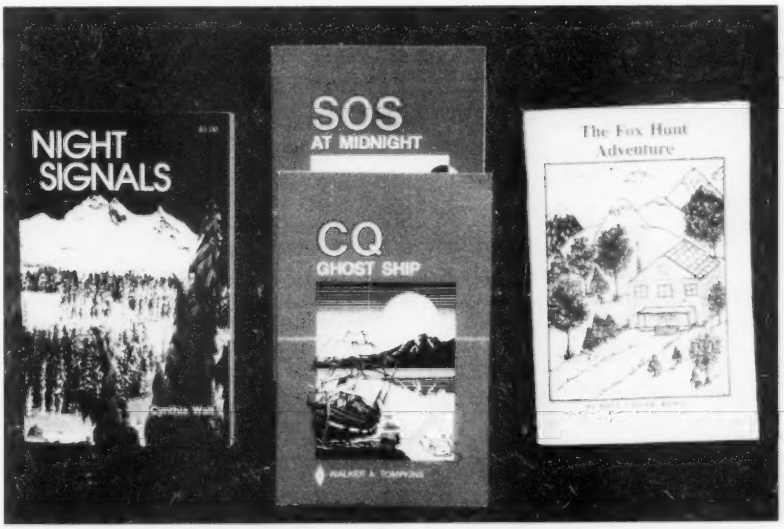

Photo D. *Hams and future hams of any age will learn about our hobby and be entertained by ham radio fiction. These four books include RDF in their plots.*

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Fairfield OH 45014
[n8omw@hotmail.com]

CPR for Your ARC

How to revive the local club.

My first experience with amateur radio came after a tornado came roaring through our county. I was a Disaster Volunteer for the Red Cross and they called the local radio club out to handle communications.

I was a pre-teenager then. After finding out more about the club, I started taking the class they offered. After 8 weeks studying and learning Morse code, I passed my test. That was in 1990, when I was a young teenager. The first few years, I was active on the local repeater and advanced through the license classes to an Advanced Class license.

After 5 years of being in a radio club that was going nowhere but trying to keep a repeater up and running, I got bored. Don't get me wrong, the hobby did not bore me — it was the company. After leaving the hobby while in college and starting my "grown-up life," I decided to come back to the club that helped me achieve my license. I attended a few monthly meetings, participated in their nets each week, and simply found that the club really had not changed in five years.

As a young member of the club, I decided I must do something to keep this club alive. Yes, they did have a club station that was used only by a few members. The club station was located at the local Vocational School. The school had guaranteed that the radio club would get a better location for the station and better access. This is true and it did happen, but no one wanted to step up and take charge of the situation. What situation? you may ask.

The club was trying to survive as a repeater club with the average age of a club member being in their mid-sixties. In order to draw new people into the hobby, the club had to expand. We are getting a new station location, but what do we put into it?

The newest equipment we had was a Yaesu FT-757GXII, not the latest nor most modern. After some research, it was found that the local Community Foundation offered grants to help local groups get equipment (usually schools getting computers or local 4H groups getting money to travel, etc.). A grant was applied for and received — our thanks to the club member who also made his return last year to the hobby after many years off, Tom AI8B. The grant allowed the club to purchase new, state-of-the-art equipment.

The status quo must go

OK, now the club has a new home, new equipment, but still the same members. The members are not getting any younger and we have had several SKs over the past year. After talking to a few of my comrades in the club, it was decided that we needed an attitude change, a leadership change, and new faces.

Wow, what a challenge. Well, I guess since I was coming up with all this discussion, it was thought that I should take over as president in the upcoming year. A job in which I really didn't know what to expect, but I took the challenge. What a challenge it was! So many hams with 30+ years experience and such broad interests, and then me, a 25-year-old with fresh ideas, wanting to change the status quo.

Getting the word out

The first thing I did was to make sure all club members knew what I was trying to do. The club is for its members, and I believe all members should be aware of what is going on. The one thing that I did stress was that in order to survive in this area, we would have to be more than a repeater club. The phrase "More than a Repeater Club" became my motto. We

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Eric Nashlund NL7ZW
HC 60 Box 271
Copper Center AK 99573

QSL Archiving Made Easy

A Pioneering way.

I know that I'm not alone in my desire to show off the QSL cards that prove my consummate abilities to work DX stations that others can't even hear. It just comes with the territory. Each of us wants to believe that we're among the best, and the cards we've garnered are our only proof.

We pin them up on the wall of our ham shack until they take over all the available room that we desperately need to mount another coaxial switch. Then, with a heavy heart, the plainer ones get delegated to a shoe box or some other undignified container. Once the cards get stacked away, we no longer have the easy ability to show them off to our shack visitors.

However, as I entered the second half-century of my life and began giving a bunch of stuff to my daughter, I came across a photo album that looked suspiciously like a QSL card display system. As I figured to give the photographs to my daughter anyway, I rapidly emptied several pockets to see if the calibration of my eye was correct and cards would indeed fit.

Slipping a few cards into the pockets, I realized that the Pioneer BDP-35 photo album (**Photo A**) was the answer to the storage dilemma. Each of these albums will store — and more importantly, display — 300 standard-size cards in the clear plastic pockets, with three to each facing page (**Photo B**).

There was only one problem. I only had one album, and it had been bought years ago by my ex-wife. Now, it has been my observation that high-tech companies come and go, while low-tech ones merely transplant themselves overseas. So it was time for a Web search, and lo and behold, I found

Continued on page 54

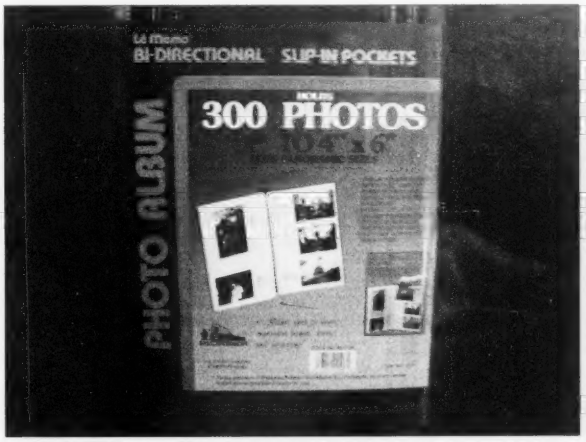

Photo A. *Pioneer BDP-35 photo album: "grab-and-go" kit for 300 of your QSL cards.*

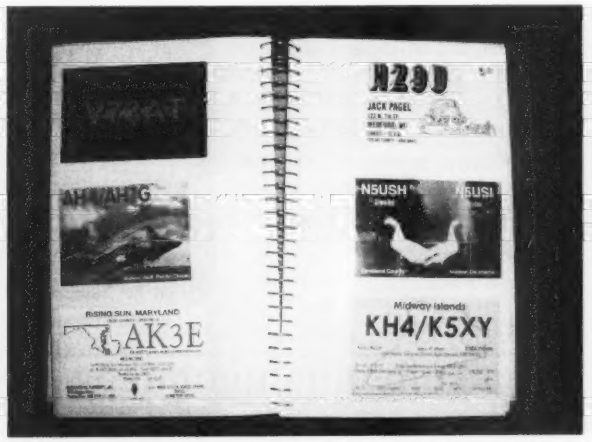

Photo B. *You've got to admit that this looks really neat and is a perfect fit for QSL cards.*

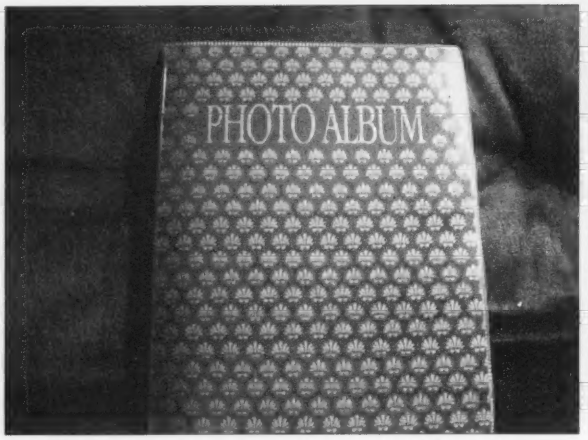

Photo C. *This FC-246 compact album will hold 64 cards.*

Photo D. *The FC-246 compact album lets you show off your standard-size or smaller cards four at a time.*

QSL Archiving Made Easy

continued from page 53

their Web page. And I do mean Web page — all of one page.

Still, there was a hot link to their E-mail, so I asked them for a distributor. Next day, I had a toll-free number for Chadwick's Photo Specialties in California (1-888-229-3020) and within moments, my credit card number ensured that four more albums were on the way. Those of you who live in more populated areas can probably find the same albums at the big box stores.

Once the albums came in, I was in my element as I began slipping the cards into the albums. As part of the shipment, I also got an FC-246 (**Photo C**) compact album that would hold 64 cards with two to the facing page (**Photo D**). This was ideal for WAS, and as a bonus, enough room was left over for Canadian provinces. While the BDP-35 album can store oversize cards vertically, the smaller FC-246 is limited to standard or smaller cards only.

With Pioneer albums, we can now store hundreds of cards in a convenient book holding 300 — cards that would usually take up 40 square feet of wall space. More importantly, the cards, if you arrange them right, are ready to take to a hamfest or ham meetings for awards confirmation.

When I purchased my albums (several months ago), the BDP-35 albums were $14.99 each and the FC-246 albums were $3.99 each. You can call Chadwick's at 1-888-229-3020, or write for prices at Chadwick's Photo Specialties, P.O. Box 2370, Chatsworth CA 91313-2370. Or E-mail [albums@chdwcks.com]. 73

Close Encounters of the 5R Kind

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Orchidée, we went to get a last lemur fix at Les Lemuriens, where they have a number of black-and-white ruffed lemurs that are so tame that they will drink your glass of Coke if you don't pay attention.

I found the early morning sessions on the radio to be rather disappointing. I was generally too late for 30 meters. However, 20 meters was wide open to the USA at around 0400 UTC, but lacked activity. 10 meters in the late afternoons was excellent and I enjoyed some really good pile-ups. I promised myself a late-evening session on 30 or 40 meters, but for some reason, after a good dinner and a bottle of excellent Malagasy wine, I never actually made it.

The QSO breakdown looks like this: 30 meters — 51 QSOs, 15 DXCC entities; 20 meters — 250 QSOs, 31 DXCC entities; 17 meters — 244 QSOs, 40 DXCC entities; 15 meters — 19 QSOs, 10 DXCC entities; 12 meters — 85 QSOs; 25 DXCC entities; and 10 meters: 885 QSOs: 51 DXCC entities. Total: 1,534 QSOs, 65 DXCC entities.

My particular thanks go to my XYL, Jan; Solofo 5R8ET for arranging the license; his wife and family for their hospitality; Cortez Expeditions in Tana for the travel arrangements; and the management and staff of the Hotel Soanambo on Ile Sainte Marie, without whose help and understanding this operation would not have been possible. 73

Say You Saw It In *73!*

Letter From the Other Side

continued from page 35

assurances that houses and barns could be protected from lightning damage by its action.

This was indisputably the first practical and commercially useful application of electricity — the event which, more than any other, marks the beginning of the electrical age.

Father and I had our differences while we were alive. Ever the radical and a dreamer, he refused to make money from any of his inventions, offering them instead as gifts to the world. He often said that he only wished he could come back in 100 years to see what further progress his countrymen had made in controlling their natural world. Even now, from this place, it seems not to trouble him at all that the people of 2002 are pretty much ignoring this

anniversary of his launching of the art of electrical technology. But it troubles me.

(Signed) **William Franklin** 73

Saving the Fleet

continued from page 37

NiMH, SLA, and Li-ion/polymer batteries, and is programmable to a wide range of voltage and current settings. Custom battery adapters simplify the interface with different battery types. A quick test program measures battery state of health in three minutes, independent of charge. Nickel-based batteries are automatically restored if the capacity falls below the user-defined target capacity.

Manufacturers of portable equipment support battery maintenance programs. Not only does such a plan reduce unexpected downtime, but a well-performing battery fleet makes the equipment work better. If the recurring problems relating to the battery can be eliminated, less equipment is sent to the service centers, a win-win situation for the user and the vendor.

This article contains excerpts from the second edition book entitled *Batteries in a Portable World — A Handbook on Rechargeable Batteries for Non-Engineers.* In the book, I evaluate the batteries in everyday use and explain their strengths and weaknesses in laymen's terms. The 300-page edition is available from Cadex Electronics, Inc., through [book@cadex.com], tel. 604-231-7777, or most bookstores. For additional information on battery technology visit [http://www.buchmann.ca]. 73

The History of Ham Radio

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"'Biirgrmph bru rotary ge ge ugerumf om with my set rettysnitch spitty tone hit in potimus?' Now what do you suppose the poor gink was trying to say when he unreeled that? You have to guess a lot in wireless, and how would you guess this? Something is wrong with this fellow's biirgrmph, his rotary also has a bad case of the ugerumf and somebody around the place must have spit on his rettysnitch, because his tone was so rotten it hit him on his potimus. Sounds bad to me. Why will some people send such personal matter by wireless when the whole country can overhear? It isn't decent, and it makes the QRM more rotten than ever, and just think of the way it makes a perfectly good logbook appear.

"I spent the better part of an hour trying to make out what ailed the poor fellow's biirgrmph, but had to give it up. What we ought to do is to organize an Anti-QRM Association. Then let us elect for Chairman the worst plug-ugly we can find in these U.S.A. Then let us chip in a little money and hire a clerk with a bad disposition who will write letters threatening the life of everybody whom the members report as causing needless QRM. Let us rise, fellow bugs — down with the fellow with the scratchy spark coil — down with the

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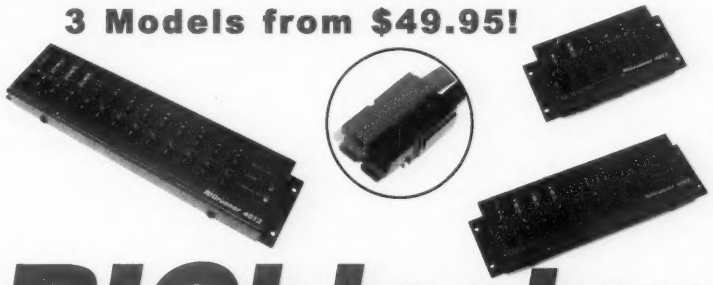

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fellow, the unspeakable skunk who calls somebody and sends a long relay message repeating each word three times when the station to which he is sending is sending one thing at a time himself.

"There, by heck, I have that stuff off my back and chest. Now you over there in Illinois, get this call — let everybody stand back from now on — I'm tired and sleepy and cross — and I don't care who I QRM, until I get that pin cleared off ..."

That was the way the Wouff Hong was brought into being, and it will continue to dominate the cold and blustery nights at ham gatherings to perpetuity — Believe it or not!! 73

The Digital Port

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was a reason why I was led to this Web site by the search engine?

One of the authors of TWPSK is WAØEIR, the ham with whom I had been in contact originally. What does that prove? I suppose, if nothing else, when hams write software, they do it so they can use it on the air and talk to the rest of us just as if they "belonged." No derogatory inference meant there to all you ham programmers. You do belong. Sometimes we think of you as being on an untouchable pedestal.

I will have to go back and look, but I think that German Web site is another highly informative spot on the Web with many downloads listed. Additional fodder for The Chart, along with the WAØEIR site.

Projects

One of the things I managed to get working during the last month was the addition of serial ports to this relatively new computer. I have mentioned, and you have probably noticed, most computers are going to the USB ports in place of the old-time 9- and 25-pin serial ports to which most of us, and our ham peripherals, have become accustomed. We are lucky these days if a new computer comes with just one old-style port where we may easily plug in such a device as a TNC.

This computer came with one 9-pin port (plus a dummy port even the manufacturer could not explain) and four USBs. The USB is a very user-friendly port — plug in a peripheral that is designed for it and the system finds it immediately and starts to communicate. Works that way with my digital camera, plus another cable that signals the computer to do a magic shutdown when the UPS power supply kicks in.

I had ordered a board with four additional serial ports for this computer and found I had ordered wrong. So, made the swap for the correct one and learned another lesson in addition to paying attention when ordering. The first board had a bunch of jumpers to figure out and I had done my guesswork on that part before attempting the installation. Believe me, tedious, but I won't dwell on that.

The replacement board, made for this machine, had a whole new concept, at least for me. No jumpers, nothing to do but plug it in and put a CD in the drive and let it go through an almost totally automated plug-and-play routine. The only thing it needed me to do was restart the "installation" for each new port. When it was done, the ports are all identified in the Windows device manager. Strangely to me, the modem was designated as being on port 5 which never existed until that day. Never asked my permission, just did it. Don't argue with things that work.

By the way, the card that works costs twice the price of the one that did not. Perhaps the convenience of installation is worth it. I see folks paying a bit more for adapters to operate the older equipment from the USB ports, so it was still a bargain if I look at it that way.

So now I have three serial ports connected at all times. Not necessary for all applications, but it simplifies one portion of my life. The original 9-pin port has the PTT circuit plugged in. The four new ports are 25 pins and one of them has the rig control module plugged in and the PK-232MBX is plugged into one of the others. This leaves one for a hoped-for automated antenna rotator, and still one port not designated for immediate use.

That seems to be about as much as I should tell you about in one sitting. I was looking at this, and I think I see why I didn't get much air time this past month. Gotta change that. Take care, and by the way, I found something the past few months I didn't know. My E-mail address can be written without the "worldnet" included. That is, KB7NO@att.net is all that is necessary. Works both ways, though, so nothing to change if you have it in an automated address book.

Remember, if you are looking for The Chart, it's now on the Web at [http://kb7no.home.att.net]. 73 for now and will see you next time, Jack KB7NO. 73

On the Go

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a point. While many people take the opinion that real hams build their equipment from scratch, there are various degrees of construction. In the early days of amateur radio, a newly licensed ham would construct his rig from tubes, resistors, capacitors, a telegraph key, and headphones. The complexity of today's equipment is such that interconnecting various units is as complex as constructing a radio from components in the 1930s. My APRS system includes a personal computer, a TNC, a Peet Bros. weather station and two transceivers. The personal computer is specifically configured for my APRS operations. It is running one program for APRS and another for the weather station. The weather station has multiple sensing components spread all over the outside of the house. Each transceiver is configured in a specific way for APRS operations.

Most systems are not, in fact, "plug and play" and it takes a fair amount of hardware and software manipulation to get the entire system to work properly. Anyone who has had to track down IRQ conflicts, RFI generated by a computer, software bugs, etc., would support my view that this is not easy.

I believe that interconnecting the various units into a system advances the technical aspect of the hobby, particularly since every system tends to be just a little bit different and there really is no standard. While the pioneers in amateur radio may have wound their own coils or ground their crystals, they did not build their own tubes. We may do less soldering of discrete components, but that is called progress.

(e) Continuation and extension of the amateur's unique ability to enhance international goodwill.

In today's world, this might be the most important role for amateur radio. At various times each of these purposes has risen to a higher level of importance, or receded to a lower level. Times change and needs change with it. Today many people in the world have various feelings and attitudes towards Americans. Some are not very positive. Some are outright hostile. Many of these feelings and attitudes might be based on incomplete or erroneous information about Americans. They may be based on propaganda, or even our television shows. I know my life doesn't imitate most television programs (with the possible exception of "Home Improvement").

I did not have the opportunity to attend the Hamvention in Dayton this past spring, but in what I read, Riley Hollingsworth's presentation apparently touched on this. This got me to thinking that we have a unique opportunity and an equally unique responsibility. We can be ambassadors to the rest of the world. Every QSO has the potential to impact how others perceive not just the American ham they hear, but by extension, every American. As such, we need to think that every time we key the mike on the HF bands, we are literally speaking to the world and creating the impression of Americans that may impact how people act toward us in the future.

So, based on my personal interpretation of Part 97 and the events in the world today, I am recommending that each of us:

1. Spend a little time having fun with the hobby.
2. Put on our party manners and talk with our counterparts around the world.
3. Actually spend some time conversing, rather than giving a signal report and moving on.
4. Listen to what hams in other countries have to say.
5. And, overall, try to enhance international goodwill.

When I travel, the most common interaction I see is people talking on cell phones. It is a very convenient tool and I use it myself on a frequent basis. There is a fundamental difference between amateur radio and almost every other form of communication, including telephone. In most cases, people connect with a particular individual with whom they have arranged a method of contact. This may be by providing another with your telephone number or E-mail address or chat room name. On the other hand, amateur radio is based on the concept that we have a desire to talk with other hams with almost no regard as to who or where they are. That is why we are tasked with enhancing international goodwill.

When I first wanted to get my license, it was the chance to talk with the world that appealed to me. I'm going to take some time to do just that! How about you? 73

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Above & Beyond

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from the 100 watt level and get 47 dB = 50 watts. Subtract the example's couplers loss at 30 dB (47 – 30) = 17. So if 50 watts minus 30 dB is +17 out of the coupler, +17 = what in watts?

Well, let's figure it out, getting rid of the 10 dB increments for example's sake. We stated above that if 100 watts was 50 dBm, and cutting it in half reduces power 3 dB, then 50 watts = 47 dBm. Moving the decimal one place for each 10 dB increment produces for 5 watts = 37 dBm, 0.5 watts = 27 dBm, and (0.05 watts) 50 milliwatts = +17 dBm. The nosebleed was done to show you that in the example above, if you were using a 20 dB directional coupler and a 2 watt dissipation attenuator, it would be in the range of its power rating. As specified, you would expect to see a half of a watt coming out of the 20 dB coupler and read +7 on the power meter after the 20 dB fixed attenuator on the coupler output.

The trick of using several attenuators, or directional couplers and attenuators in combination, to measure power is simple safety for both the power dissipation ratings of the coupler and attenuator, and to prevent overpower to the thermistor power head. In other words, don't use a 50 dB attenuator rated at 2 watts dissipation to reduce a 50 watt transmitter to zero dBm. Yes, it will work, BUT ONLY FOR A FEW SECONDS, IF THAT LONG! Get rid of the high power by sampling off 20 to 30 dB of power in a coaxial directional coupler to reduce power in the range a 2 watt attenuator can be used in its normal dissipation range. Remember, it's better to use more attenuation to prevent damage from unexpected levels than to guess and get it wrong. You can always reduce attenuation and remeasure levels. However once you overpower an HP-478A thermistor mount or other devices, they are history.

Have you ever used a Bird Model 43 wattmeter and its set of slugs for different power and frequency ranges? Welcome back to the directional coupler — that is what is going on internal to the slug inside the Bird 43 Wattmeter. Same thing — directionalized power measurements by reversing the slug and reading return or forward power. While it's a wattmeter, it's also an SWR meter displaying SWR or more commonly used return loss, a statement of the same thing. SWR is a ratio, and return loss is expressed in dB, the Bird meter in watts.

Another great use of a directional coupler is to measure return loss on microwave antennas. Construction of an SWR bridge for 1296 MHz will take some time to calibrate and balance, but if you have a directional coupler and power meter you can do the same job easily. Couple a signal generator to main output port (yes I said OUTPUT PORT) and the antenna on the INPUT PORT of the three port directional coupler. Connect a power meter to the coupled output port. With an open or short on the coupler RF input (antenna connection), note the power reading. Let's say with +17 dB drive at 1296 MHz and 20 dB of coupling, readings should be near -3 dB. This is due to forward power of +17 reflected back to the coupler output with 20 dB of coupling loss = minus 3 dB with a short or open.

Connect the antenna with a short section of coax (couple of feet) and measure reflected power now. With my 1296 MHz antenna connected, I read minus 19-20 dB. Subtract the minus 3 dB reading obtained with a short and the antenna's return loss is 17 dB, quite good. Note the difference between no antenna and antenna connected, and do adjustments for best (most negative number returned); this means the antenna is not returning power to the source or best SWR adjustment. We never hit it perfect, but it can come quite close.

For example, Kerry N6IZW and I both constructed Alford slot antennas for 1296 MHz and wanted to measure operation. We went through the procedures above and both worked quite well. I wanted to add a plastic cover for my antenna, and tested a section of PVC pipe near the radiating antenna's slot. I noted that the reflected power meter went from -20 dB to -8 dB. This indicated the plastic that I was going to use for a weather shield was worthless — it made the antenna look like a shorted section of coax. What was happening was that this variety of PVC pipe detuned the antenna and caused almost all power too be reflected back to the source, i.e., high SWR. Trying other materials proved that a fluorescent light plastic shield that was slipped over my florescent bench light did not show any action on the power meter — it acted like it was invisible. No reduction in the power meter reading (-20 dB), indicating good SWR and minimum or at least good return loss.

The directional coupler comes in many different frequency ranges and coupler loss factors. Check them; they can be a very useful device for power measurements as well as matching schemes vs. using an SWR bridge. Just making use of common devices and alternate test arrangements.

I would be glad to answer any questions covering this and related topics. Please send me an E-mail to: [WB6IGP@ham-radio.com] for a quick reply. Next time I hope to

describe the Alford slot antenna we constructed out of brass tubing for a good omnidirectional 1296 MHz antenna. 73, Chuck WB6IGP. 73

Homing In

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to schedule a ten-meter T-hunt. I just had to try RDF!

Stories such as these and the "Carl and Jerry" series in *Popular Electronics* magazine got me going in ham radio. They fueled my imagination for new gadgets and encouraged me to learn more about radio and electronics, which led to a career as an engineer.

Tompkins, a prolific writer of westerns and screenplays, produced three ham radio novels in the 1960's, aimed at teenage and pre-teen boys. After a twenty-year hiatus, he came back to ham radio as a subject and wrote three more Tommy Rockford novels in the four years before his death in November 1988. He is missed, but others have taken up his effort to promote ham radio through adventure stories.

Today's best-known ham radio novelist is Cynthia Wall KA7ITT. She writes from a much different perspective than Tompkins. Unlike the athletic, technically inclined Tommy Rockford, who seemingly spent 24 hours a day being a ham, Cindy's lead character is Kim Stafford KA7SJP, a teenage girl for whom ham radio is just one part of a well-rounded life.

You would expect that such a heroine would appeal primarily to girls Kim's age and younger. Indeed, that was Cindy's intended audience, but her stories have much wider appeal. Several adult male hams have told me that once started, they had to stay up into the wee hours to finish reading Wall's books.

With careful research and attention to details, Cindy has produced four ham radio thrillers for ARRL. *Night Signals*, her first book, is the only one that includes RDF. Published in 1990, it tells how Kim and ham radio come to the aid of her new friend Marc Lawrence KA7ITR when he is injured on a solo hiking trip high in the Cascades. But my favorite is her second book, *Hostage In The Woods*. If you read Chapter 3 and the Author's Note, you'll see why.

The Foxhunt Adventure

Another writer following Walker Tompkins' legacy is Dave Casler KEØOG, author of *The Foxhunt Adventure*, published by MFJ Publishing. Written for young readers, it is a story of four youth attending high school and working in a pizza parlor in Louisville, Colorado, a town near Boulder. Illegal drugs are appearing on the campus and Ben Thompson KEØOG hears something very unusual in his hamshack that might help identify the source.

The next few days are filled with danger and intrigue. Ben and his pizzeria coworkers learn important lessons about ham radio technology and human interaction. One begins working toward her ham radio license. Her interest in improving her German by talking to DL hams and her attraction to Ben give her a dual incentive to study. Later, her budding knowledge of CW becomes vitally important as the story unfolds.

Dave Casler learned about radio in his childhood when his aunt gave him a Hallicrafters shortwave receiver. This interest led him to serve as an electronic systems officer in the US Air Force, and to get an advanced degree in electrical engineering. Today he is an engineer in aerospace.

"Like you, I got into ham radio because of the Walker Tompkins books," he told me. "I always wanted to do something similar to that, but never thought I could until I saw Cynthia Wall's first book. I read that and said 'Gee, I can do this.' And I put an outline together."

Casler drew on his T-hunting experiences at Brigham Young University to complete his tale of high school ham adventure. "I'd been interested in ham radio for years, but it wasn't until I was in college that I did something about it," he says. "The club I was in had a lot of T-hunts. We thoroughly enjoyed them. I thought they were the greatest thing."

The Tompkins and Wall books are readily available in paperback from ham radio dealers, in addition to direct mail from ARRL.[2] Cindy Wall often goes to ham conventions and is invited to give talks in Oregon schools about ham radio and writing.

On the other hand, Casler's book has not been promoted by its publisher. You probably can't find it in ham stores, but it's available by mail order from MFJ. Stock number is MFJ-3101. It is also available on the Web from Barnes and Noble.[3]

So if it's time to get a birthday present for a grandchild, niece, nephew, or any other young person who should learn more about ham radio, consider one or more of the Wall, Tompkins and Casler books. If it's for an adult, consider Rebecca Gruettner's book. But be sure to do your shopping early, so you'll have them in time to read yourself!

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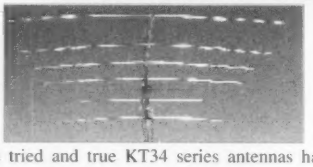
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Notes

1. ISBN 1-4010-4935-4 for paperback, 1-4010-4937-0 for e-book. On the Web at [www.xlibris.com/TheFox.html].

2. On the Web at [http://www.arrl.org/catalog/] in the History and Adventure section.

3. ISBN 1-8912-3708-X for paperback. On the Web at [www.mfjenterprises.com] and [www.barnesandnoble.com]. 73

CPR for Your ARC

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have a beautiful club station with two HF rigs and computer interfaces that must be used. The next event that I had was to start a membership campaign with both word-of-mouth and letters. The hardest work was putting together a Recruitment Brochure. The brochure promotes the hobby and club in general.

The brochure allows the information to be available at the many public buildings. It allows for the general public to get educated about ham radio.

Another activity we are currently working on is a presentation to be made at schools and public gatherings (fairs, open houses, libraries, etc.). The presentation is being put together as a PowerPoint file so that anyone can run through it for a group. This presentation covers five main aspects of the hobby:

Introduction to Amateur Radio
What is HF?
What is a Repeater?
VHF/UHF Operations and Emergency Communications
Tower Safety

The plan is to add more presentations as time goes on — it was felt that these were a good starting point.

OK, we have accomplished (for the most part) an attitude change and a leadership change, but what about the new blood? Well, that will come with time, and it has only been five months. I feel as if it will take a good year to get this program in full swing. The success we have had has generated enough interest for the club to be able to offer a free Technician License Class in the fall. We have a lot of work ahead of us, but I feel that the real hard work is now behind us. Now is the time to make sure the community knows about us, and we are putting on as many demos, special event stations, and presentations we are able to.

I cannot and will not take any credit for the club being where it is today. It took a lot of hard work by many members to achieve. Many thanks to all the club members who have participated and helped expand the ideas that I have had. Our wives still wonder why meetings last till after 11 p.m. some nights.

Have I learned anything? Hell, YES.

I learned that you can have some of the brightest, most eager, and most willing people around, but without leadership or someone to take charge, nothing really ever does get done. Please visit our Web site for more information about our club — please visit [www.qsl.net/w8cci]. 73

NEVER SAY DIE

continued from page 4

Visit New Hampshire

This could be the last time you'll have an opportunity to see one of the world's most magical fall leaf displays. Drive up for a few days in early October. Or fly into Manchester and rent a car. Zip on up I-93 to Franconia Notch and take a ride on the Tramway, visit The Flume, and the Foot Basin. Stop by Clark's Trading Post and put a quarter in an old music machine.

Waging Peace

Well, it's about time, isn't it? We've been waging war after war after war. WWII, the Cold War, the Korean war, Vietnam (including Cambodia), Somalia, Bosnia, Panama, Haiti, Grenada, Guatemala, the Gulf War, Afghanistan, the war on poverty, the war on drugs … you fill out the list. Now we're facing another with Iraq, which could escalate into Syria and Iran, plus a few other Moslem countries.

Is there any solution to this whole mess? Of course there is, or I wouldn't have brought it up.

As Stan would say, "A nice mess you've gotten us into, Ollie."

One way to solve problems is to look for places where similar problems have been solved before.

One of the most basic problems that needs to be solved is to get a few billion people jobs that pay more than a dollar a day. They need to be able to feed their families and have a place to live. I don't have one magic bullet for this, but I do see several ways the U.S. can get the ball rolling … and do very well rolling it. Hey, everyone has to benefit, right?

What I discovered during my visit to New Caledonia was a sneaky way to stop people from fighting. My visit to Singapore showed me how to get a basket-case economy into high gear in fairly short order. And my visit to Yugoslavia clued me in on another road to peace.

Basically, what I propose our doing is getting the people in Third World countries to become consumers … making things and selling them. This could work for us big-time in Afghanistan, where we screwed up beyond all recognition after we helped the Afghanis defeat the Russians. Even worse, the experts predicted exactly what would happen that led to the Taliban taking over. I wrote about it at the time.

Having spent a couple weeks in Afghanistan (YA1NSD), I have a fair understanding of the country.

The country is strategically located for an oil pipeline from the Crimean oil reserves to the Indian Ocean, which is what most of the fighting has been about. For that matter, the 9/11 attack provided a beautiful opportunity for us to get control of Afghanistan. Bush couldn't have asked for a better excuse.

As an aside, I'm sure anxious for someone to come along and market some cold fusion-powered products so we can start putting the oil, coal, natural gas, and power companies out of business. It's going to happen eventually, and we'll see a new trillion-dollar industry springing up. It's about time we put Saudi Arabia out of business. And Iraq, Iran, and a few other oil producers. Remember that it was the Saudis who gave us 9/11, and who spawned and funded bin Laden.

Having published scientific papers by some of the world's leading physicists, plus all of the patents so far issued in the field, I know what's going on and the players in the cold fusion field.

So what's step one in waging peace? The hams in New Caledonia explained that when the French arrived there the native tribes had been at war with each other for hundreds of years. Instead of going in and killing 'em, the French set up TV stations. The natives had to stop fighting long enough to get jobs so they could buy a TV set for their families. Then they had to keep on working so

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PROPAGATION

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Solar Flares

Solar activity will be at moderate to low levels early in the month, with a nice run of Good (G) propagation days expected from the 5th through 9th. Several Fair (F) days are likely to precede and follow this period, so all in all we should see pretty decent DXing conditions for about a two-week stretch.

The second half of October looks like it will be pretty dismal, however, with only one Good (G) day and three Fair-to-Good (F–G) listed on the calendar. The 14th through 19th is likely to have numerous moderate flares, causing frequent ionospheric disturbances. The last four days of the month show a potential for some of the largest solar events of 2002, so look for several CMEs and/or X-class flares. They could produce a large proton event between the 28th and 31st if any of them are Earth-directed. The positive side of this is that spectacular auroral displays are likely to be visible across Canada and the northern U.S.

Following behind the equinox that occurred last month, seasonal effects will continue to be at their most favorable. Not withstanding the daily forecast mentioned above, this time of year historically favors us with Good to Excellent propagation on 10, 15, and 20 meters during the day, Fair to Good conditions on 20, 30, and 40 meters at night, and Fair conditions on 80 and 160 meters, also at night. The lower D and E layers of the ionosphere are now less strongly ionized during the day and will quickly disappear after sunset, giving us stronger signals and more stable skip across the board. Hurricanes between the Tropics of Cancer and Capricorn will still be around, though, causing some trouble on the lowest frequencies, but continental thunderstorms will have all but left us except for the occasional disturbance along the Gulf coast.

As mentioned earlier in this article, X-class flares may occur around the end of the month. These are the strongest flares on the "alphabet soup" scale that also includes the B, C, and M classes. Some folks are a bit sketchy about what all this is about, so here is a brief explanation. Each step up in class represents a successive order of magnitude, which means that each class is ten times stronger than the one below it. Therefore, an X-class flare is around a thousand

October 2002

SUN	MON	TUE	WED	THU	FRI	SAT
		1 F	2 F	3 F	4 F	5 G
6 VG	7 G	8 G	9 G	10 F	11 F	12 F-G
13 F-G	14 F-P	15 F-P	16 F-P	17 F	18 F-P	19 F-P
20 F-G	21 F	22 F	23 F-G	24 F-G	25 G	26 F
27 F-P	28 P	29 P	30 VP	31 VP		

EASTERN UNITED STATES TO:

GMT:	00	02	04	06	08	10	12	14	16	18	20	22
Central America	15/17	17/20	17/20	17/20	17/20	15/17	15/17	10/12	10/12	10/12	17/20	10/12
South America	15/17	15/17	20	30/40	30/40			10/12			12/15	12/15
Western Europe	30/40	30/40	17/20	17/20				10/12	10/12	12/15	17/20	17/20
South Africa	20/30	40	20/30	20/30					10/12	10/12	12/15	12/15
Eastern Europe	17/20	30/40	40/80	40/80	30/40			15/17	10/12	15/17	15/17	17/20
Middle East	20	20	20						10/12	10/17	15/17	15/20
India/ Pakistan	17/20	17/20						15/17				
Far East/ Japan	10/12		17/20				17/20	17/20			15/17	10/12
Southeast Asia	15/17		17/20	17/20			17/20	15/17	10/12			15/17
Australia	10/12	17/20	20	20	20	30/40	30/40	17/20				10/12
Alaska	10/12		20				17/20	20			15/17	10/12
Hawaii	10/12	12/15	17/20	17/20	20/30	20/30	17/20	17/20				10/12
Western USA	20/30	20/30	20/30	30/40	30/40			10/12	10/12	10/12	15/17	17/20

CENTRAL UNITED STATES TO:

Central America	15/17	15/17	17/20	17/20	20/30			10/12	15/17	10/12	10/12	10/12
South America	15/17	15/17	20/30	20/30	17/20			10/12			10/12	12/15
Western Europe								12/15	12/15	12/15	17/20	17/20
South Africa			17/20	17/20					12/15	12/15	15/17	17/20
Eastern Europe	30/40	30/40	30/40						12/15	12/15	17/20	17/20
Middle East	20	20							15/17	15/17	15/17	
India/ Pakistan	15/17	17/20						12/15	12/15			
Far East/ Japan	10/12	12/15	17/20	17/20	17/20		17/20	17/20				10/12
Southeast Asia	10/12		15/20	17/20					10/12	10/12		
Australia	10/12	15/17	15/17		17/20	20/30	30/40	17/20			12/15	10/12
Alaska	10/12	12/15	17/20	17/20	20		17/20	17/20				10/12
Hawaii	12/15	15/17	15/17	17/20	17/20	20/30	30/40	17/20		10/12	12/15	12/15

WESTERN UNITED STATES TO:

Central America	10/12	12/15	15/17	17/20	30/40				10/12	10/12	10/12	12/15
South America	10/12	12/15	15/17	17/20	17/20						10/12	10/12
Western Europe	17/20				17/20			17/20	17/20	20	20	20
South Africa	17/20	20		20						10/12	12/15	12/15
Eastern Europe	17/20	17/20							15/17	15/17	17/20	17/20
Middle East	20									15/17	15/17	20
India/ Pakistan		15/17	17/20						12/15	15/17		
Far East/ Japan	10/12	10/12	12/15	17/20	17/20	17/20			17/20			15/17
Southeast Asia	10/12	10/12						17/20	15/17	17/20		
Australia	10/12	12/15	15/17	15/17	17/20	17/20	17/20		17/20			
Alaska	10/12	10/12	15/17	17/20	17/20	17/20		17/20	17/20			15/17
Hawaii	10/12	10/12	12/15	15/17	20/30	20/30	30/40		12/15	10/12		
Eastern USA	20/30	20/30	30/40	30/40	30/40			10/12	12/15	12/15	15/17	17/20

Table 1. *Band, time, country chart. Plain numerals indicate bands which should be workable on Fair to Good (F-G) and Good (G) days. Numbers in parentheses indicate bands usually workable on Good (G) days only. Dual numbers indicate that the intervening bands should also be usable. When one number appears in parentheses, that end of the range will probably be open on Good (G) days only.*

times more explosive than a paltry B-class flare! Also, within each class, there are nine subdivisions (numbered 1–9) delineating further gradations in flare strength, so a C5 flare is 1.5 times stronger than a C1.

The lower category flares, the Bs and low Cs, occur almost every day and barely garner any attention. The X-flares occur only a few times each year and are major events that can trigger planet-wide radio blackouts or long-lasting radiation storms. The large flares of July 20th and 23rd this year caused widespread R3 (strong) radio blackouts as well as hazardous conditions for the power transmission, pipeline, airline, and space industries. For more information on the effects of solar flares see the "User Groups" at [http://www.sec.noaa.gov/SWN/index.html].

Until next time, Happy Halloween and 73!

Band-by-Band Summary

10 and 12 meters

Again, much of the globe should be workable during daylight hours. For best results, work from east to west as the day progresses. Try Europe before noon, Africa and the Middle East shortly after noon, and Central or South America after that. Late in the day you should pick up the South Pacific and other areas of the southern hemisphere for a few hours, but signals will fade quickly after sunset. Check the morning and evening gray-line paths over the poles for contacts in Asia. Daytime short-skip operate over distances between 1,000 and 2,000 miles.

15 and 17 meters

Excellent worldwide openings are likely to be available with the best opportunities in the southern hemisphere. Europe will peak before noon, but most other areas don't begin to open up until after mid-day. The best signals will still be from Central and South America, but strong openings can be found to both Africa and the South Pacific. Short skip will typically range from 1,000 to 2,000 miles.

20 meters

Good DX can be expected all day, from sunrise through the evening hours. Peak periods will be shortly after sunrise, again in the late afternoon, and sometimes in the early evening. West and Central Africa can provide unusually strong signals at this time of year, so try to fill in some of the countries missing from your DX log. The same is true for the South Pacific and Asia. Short skip can range from 500 miles during the day up to about 2,100 miles at night.

30 and 40 meters

Good worldwide DX opportunities can be found between sunset and sunrise, particularly into the southern hemisphere. Central and South America will be your mainstays, but Europe and the South Pacific will have their moments in the limelight. West-coasters will probably have trouble with Europe but can make up for it by working the South Pacific, Australia, and Indonesia. Skip distances can be from 750 miles to over 2,000 miles at night, but are limited to under 1,000 miles during the day.

80 and 160 meters

These bands are finally coming into season with decent worldwide DXing available from sunset through sunrise. Tropical storms may still limit activity here, but when they subside some strong European signals can be heard from the East Coast, and strong South Pacific or New Zealand stations can be picked up from the West Coast. Short skip will vary from less than 1,000 miles in the daytime to over 2,000 miles at night. 73

NEVER SAY DIE

continued from page 59

they could buy the stuff being advertised on TV. And that was the end of the tribal warfare.

So let's set up TV stations around Afghanistan and start broadcasting. That'll take a lot of steam out of the warlords as their recruits quit to get jobs. What jobs? I'll explain that, too.

One way to generate jobs is to encourage entrepreneurialism. This has worked out fabulously in India where there are groups providing micro-loans to people so they can start their own businesses.

Warning?

We're all aware of the collapse of investments. First savings and loans, then e-companies, and now Enron, WorldCom, et al. The Wilshire 5000, which tracks every publicly traded U.S. company, hit its peak in March 2000. Since then the market has lost over $7 trillion in value, and over a thousand major companies have gone out of business.

That's 41% of the value of all traded stocks going pfft in 28 months!

Alan Greenspan and Dubya assure us that our economy is sound. With almost half our people's savings gone, the sound I hear is an echo. An echo of 1929's dull thud, when Hoover also assured the country that the economy was basically sound.

This fiasco resulted in Roosevelt being elected in 1932, taking us off the gold standard so the Fed could issue all the paper it wanted on a "trust us" basis, trying to paper our way out of the depression. It took WWII to finally get things moving again. I'm not sure how our making trillions of dollars of war materials and destroying them rebuilt our economy, but it did.

Well, it got us used to having our taxes taken out of our paychecks instead of paying the government off once a year. It got us used to so-called Social Security, where our money was also taken out of our paychecks so it could be immediately spent by Congress, replaced by their IOUs. They still haven't explained where the money will come from to repay all those IOUs. But, at least they're beginning to worry about it. Thanks.

We also got used to wives having to join the workforce so families could make ends meet. Today two family members working earn less in real dollars than one did before WWII.

Okay, so what does all this mean?

Well, with a thousand companies out of business and the others busy downsizing, it's going to be more and more difficult for wage earners to find wage sources. With an average stock market loss of about $30,000 per family, people are obviously going to be buying less stuff, putting stuff manufacturers and retailers out of business. This could, at least, put a stop to the projected HDTV conversion and the yearly upgrading of personal computers.

The Iraq Mess

Let's see now, are you in favor of our attacking Iraq and getting rid of Saddam? Or do you think it's a bad idea? If you've read *Black Hawk Down* (or seen the movie), you're unlikely to be much in favor of the war. Or you may have a firm belief in peace.

With Saddam signing alliances with Syria and even Iran, and with our allies looking away nervously when we ask them to join us, the situation is looking messy.

On the other hand, a recently defected Iraqi nuclear physicist testified that Saddam can be expected to have built two or three nukes within three years. And that's if he hasn't already managed to buy a few from ex-USSR sources.

Saddam's next step is obvious … hide one in downtown Manhattan or Washington and threaten to use it if the U.S. causes him any trouble. This would give

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NEVER SAY DIE

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him all the time he needs to set up a massive biological attack on America.

Or we can all pray that Planet X will wipe out Saddam for us. Prayer really does work, you know.

Gunned Down

I told you what happened in Australia when the government confiscated people's guns. Mugging and home break-in statistics went through the roof.

Well, how safe would you feel if you posted a sign on your lawn guaranteeing there are no guns in your house?

The situation in England is another example of what can happen when the anti-gun fanatics get control. In London, the chances of being mugged are six times higher than in New York City, and we all know what a hell hole that place is these days. If you're not sure, take a walk in Central Park some evening. Let me know if you live to tell about it.

In 1997 the Brits outlawed the owning of firearms. Armed robberies last year are up an estimated 212 percent.

Worse, the government outlawed the carrying of any article which might be used for self-defense, and that has included knitting needles and walking sticks.

A homeowner held two burglars at bay with a toy gun and called the police. They arrested him for using the imitation gun to intimidate the burglars.

How about the farmer who used his shotgun on two thieves who had broken into his home for the seventh time. He got a life sentence for killing one, 10 years for wounding the second, and an extra year for having the illegal gun. The wounded thief was out of prison in a year.

Are we headed in the same direction?

Eating Disorders

Good grief, now Wayne's going to tell us how to eat! Well, I have to — because you're making a mess of it.

Yes, I know, you've been eating since year one, so what's there to know? You open your mouth, shovel it in, and eventually you've eaten.

Unfortunately, like most other skills, unless you've had a good instructor you're going to build up some really lousy habits that are going to be very difficult to break. And worse, the instructors you had (your parents) left nature to its course, so you're a prisoner of those early habits. The same thing happened to me, so the territory is familiar.

Now, Professor Green is about to upgrade your eating knowledge, and all based on reliable research. Look, you've got this fantastic machine your parents made for you one night. It's enormously complicated and it has an unbelievably capable repair system built in. It's able to convert a wide variety of fuel into heat and the building material for a lifetime of maintenance.

So you sit down at a table, put food in your mouth, chew it, and swallow it. Case closed? Hmm, not quite. The fact is that there's this saliva stuff in your mouth which is a fundamental part of your digestive system. Chewing food just enough so you can swallow it will send it to the next part of the system before it's ready. Dr. Kellogg, a hundred years ago, had it right when he got people to chew every bite a hundred times before swallowing. Chew everything thoroughly before you swallow. Give the saliva a chance to do its part in your digestive system.

Yes, it takes longer to eat. I used to be a gap and swallow eater; now when I'm in a restaurant other groups come in, order, get their meals, eat, pay their check and are gone while I'm still sitting there chewing.

Chew your food. What's your damned hurry?

At home I listen to my tape of the previous night's *Coast to Coast* Art Bell radio show and assemble the pages of my books while I'm chewing. Or I'm cutting up fruit and vegetables for the next day. It takes a while to cut a watermelon into six quart containers. Or cut up some cantaloupes, oranges, and grapefruit.

Okay, now lesson two.

Once you've chewed everything up in a saliva bath you send it on to your stomach. Here it's doused with hydrochloric acid to further dissolve that junk you ate, mainly to satisfy your taste buds, and probably with little consideration for the fuel you should be supplying. So you pour down some water, tea, or coffee to dilute the acid so it can't do its job properly and the food is then forwarded on down the chute in only partially digested form. This means that your intestines won't be able to do their job of removing the nutrients right and the whole system is in trouble.

Your body does need a whole lot more pure water than you've been giving it, but not at meal time. Give the food an hour before you start the deluge. Give your digestive system a break, okay?

More Amelia

If these groups who want to find Amelia Earhart's plane would bother to do some fairly simple investigation, they'd stop wasting their time and a ton of money.

One group, headed by Ric Gillespie, The International Group for Historical Aircraft Recovery, is investing $600,000 in the search, going to Nikumaroro Island. Another, Nauticos Corporation, plans to spend $3 million to $4 million searching the ocean bottom in the Howland Island area. Still another, Dana Timmer's group, Head of Howland Landing, Inc., spent a million to hunt for the plane in 1999.

When writer Fred Goerner researched Amelia's disappearance, a six year adventure which culminated in his book in 1966, he went to the islands where Amelia had been reported to have been seen. And he did this with the Navy obstructing him every inch of the way.

As I've written before, Amelia was a good friend of my dad's. She kept her Lockheed at my dad's Central Airport, just across the river from Philadelphia and she had dinner at our house a couple times.

In 1936 her chief mechanic had dinner with us, explaining that he'd just finished installing special higher-powered engines, extra wing tanks, and cameras for her coming flight around the world. He said that President Roosevelt, who had been the Secretary of the Navy, had asked her to make a spy trip to take photos of the Japanese installation at Truk.

By a coincidence, when I was at the submarine rest camp in 1944 on Majuro in the Marshall Islands, the natives said that a plane had crash-landed there seven years earlier. The woman pilot was unhurt, but the man navigator had been injured. They said a Japanese ship picked up the two and their plane and took them to Saipan. This was the same story Goerner heard when he interviewed the Majuro natives about twenty years later.

When my sub stopped off for a couple days at Saipan to refuel I had an opportunity to ask the natives there about Amelia. They said that she'd been killed by the Japanese when the Americans were capturing the island, and that the Americans had burned her plane.

Again, Goerner got this same story when he visited Saipan.

I corresponded with Goerner about all this at the time and reported it in my editorials.

Why all the cover-up? Our government didn't want to admit that the most famous woman in the world had been recruited by Roosevelt as a spy. And the Japanese didn't want it known that they'd executed the most famous woman in the world. Still don't.

The next time you see a newspaper article about finding Amelia's plane, clue in the writer for me. Oh, and send me a copy of the clipping.

More Drug Nonsense

While you were sleeping, the DEA's budget has grown from $3.1 billion in

Continued on page 64

Wise Up!

Here are some of my books which can change your life (if you'll let 'em). If the idea of being healthy, wealthy and wise interests you, start reading. Yes, you can be all that, but only when you know the secrets which I've spent a lifetime uncovering.

.....Wayne

The Secret Guide to Health: Yes, there really is a secret to regaining your health and adding 30 to 60 years of healthy living to your life. The answer is simple, but it means making some serious lifestyle changes. Will you be skiing the slopes of Aspen with me when you're 90 or doddering around a nursing home? Or pushing up daisies? No, I'm not selling any health products, but I can help you cure yourself of cancer, heart trouble, or any other illness. Get this new, 2001 expanded edition (156p). $10 (#05)

The Secret Guide to Wealth: Just as with health, you'll find that you have been brainwashed by "the system" into a pattern of life that will keep you from ever making much money and having the freedom to travel and do what you want. I explain how anyone can get a dream job with no college, no résumé, and even without any experience. I explain how you can get someone to happily pay you to learn what you need to know to start your own business. $5 (#03)

The Secret Guide to Wisdom: This is a review of around a hundred books that will boggle your mind and help you change your life. No, I don't sell these books. They're on a wide range of subjects and will help to make you a very interesting person. Wait'll you see some of the gems you've missed reading. You'll have plenty of fascinating stuff to talk about on the air. $5 (#02)

The Blood Purifier Handbook: This explains how to build or buy ($155) a little electrical gadget that can help clean your blood of any virus, microbe, parasite, fungus or yeast. The process was discovered by scientists at the Albert Einstein College of Medicine, quickly patented, and hushed up. It's curing AIDS, hepatitis C, and a bunch of other serious illnesses. It's working miracles! $10 (#01)

Plant Growth Stimulator: This has the same circuit as the above, all ready to use. Postpaid: $155 (#PGS).

My WWII Submarine Adventures: Yes, I spent from 1943-1945 on a submarine, right in the middle of the war with Japan. We almost got sunk several times, and twice I was in the right place at the right time to save the boat. What's it really like to be depth charged? And what's the daily life aboard a submarine like? How about the Amelia Earhart inside story? If you're near Mobile, please visit the *Drum*. $5 (#10)

Travel Diaries: You can travel amazingly inexpensively – once you know the ropes. Enjoy Sherry and my budget visits to Europe, Russia, and a bunch of other interesting places. How about a first class flight to Munich, a rented Audi, driving to visit Vienna, Krakow in Poland (and the famous salt mines), Prague, back to Munich, and the first class flight home for two, all for under $1,000. Yes, when you know how you can travel inexpensively, and still stay in first class hotels. $5 (#11)

73 Writer's Guide: It's easy, fun, can pad your résumé, and impress the hell out of your friends. Yes, of course we pay for your articles! $0 (#78)

Wayne's Caribbean Adventures: My super budget travel stories – where I visit the hams and scuba dive most of the islands of the Caribbean. You'll love the special Liat fare which let me visit 11 countries in 21 days, diving all but one of the islands, Guadeloupe, where the hams kept me too busy with parties. $5 (#12)

Cold Fusion Overview: This is both a brief history of cold fusion, which I predict will be one of the largest industries in the world in the 21st century, plus a simple explanation of how and why it works. This new field is going to generate a whole new bunch of billionaires, just as the personal computer industry did. $5 (#20)

Improving State Government: Here are 24 ways that state governments can cut expenses enormously, while providing far better service. I explain how any government bureau or department can be gotten to cut it's expenses by at least 50% in three years and do it cooperatively and enthusiastically. I explain how, by applying a new technology, the state can make it possible to provide all needed services without having to levy *any* taxes at all! Read the book, run for your legislature, and let's get busy making this country work like its founders wanted it to. Don't leave this for "someone else" to do. $5 (#30)

Mankind's Extinction Predictions: If any one of the experts who have written books predicting a soon-to-come catastrophe which will virtually wipe most of us out are right, we're in trouble. In this book I explain about the various disaster scenarios, like Nostradamus, who says the poles will soon shift (as they have several times in the past), wiping out 97% of mankind. Okay, so he's made a long string of past lucky guesses. The worst part of these predictions is the accuracy record of some of the experts. Will it be a pole shift, a new ice age, a massive solar flare, a comet or asteroid, a bioterrorist attack? I'm getting ready, how about you? $5 (#31)

Moondoggle: After reading René's book, *NASA Mooned America*, I read everything I could find on our Moon landings. I watched the NASA videos, looked carefully at the photos, read the astronaut's biographies, and talked with some readers who worked for NASA. This book cites 45 good reasons I believe the whole Apollo program had to have been faked. $5 (#32) No, I'm not a nut case.

Classical Music Guide: A list of 100 CDs which will provide you with an outstanding collection of the finest classical music ever written. This is what you need to help you reduce stress. Classical music also raises youngsters' IQs, helps plants grow faster, and will make you healthier. Just wait'll you hear some of Gottschalk's fabulous music! $5 (#33)

The Radar Coverup: Is police radar dangerous? Ross Adey K6UI, a world authority, confirms the dangers of radio and magnetic fields, including our HTs and cell phones. $3 (#34)

Three Gatto Talks: A prize-winning teacher explains what's wrong with American schools and why our kids are not being educated. Why are Swedish youngsters, who start school at 7 years of age, leaving our kids in the dust? Our kids are intentionally being dumbed down by our school system — the least effective and most expensive in the world. $5 (#35)

Aspartame: a.k.a. NutraSweet, the stuff in diet drinks, etc., can cause all kinds of serious health problems. Multiple sclerosis, for one. Read all about it, two pamphlets for a buck. (#38)

$1 Million Sales Video: The secret of how you can generate an extra million dollars in sales just by using PR. This will be one of the best investments you or your business will ever make. $40 (#52)

Reprints of My Editorials from *73*. Very few things in this world are as we've been taught, and as they appear. As an iconoclast I blow the whistle on the scams around us, such as the health care, our school system, our money, the drug war, a college education, sugar, the food giants, our unhealthy food, fluorides, EMFs, NutraSweet, etc.

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2000 101 Editorial Essays: $5 (#77)
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Colloid Reprint. April 97 article on a silver colloid maker, history, and how to use the stuff. $5 (#98).

Colloid Clips. Three 9V battery clips, 2 alligator clips & instructions. $5 (#99)

Silver Colloid Kit: $25 (#80-98-99)

Four Small Booklets Combined: Dowsing: why and how it works; Super Organic Food: a trillion dollar new industry; Schools in 2020: another $ trillion industry; Anthrax, a simple cure. $3 (#86)

Stuff I didn't write, but you need:

NASA Mooned America: René makes an air-tight case that NASA faked the Moon landings. This book will convince even you. $30 (#90)

Last Skeptic of Science: This is René's book where he debunks a bunch of accepted scientific beliefs – such as the ice ages, the Earth being a magnet, the Moon causing the tides, etc. $30 (#91)

Dark Moon: 568 pages of carefully researched proof that the Apollo Moon landings were a hoax—a capping blow for René's skeptics. $25 (#92)

Dark Moon Video: 222-minute exposé nailing NASA with their own photos. If you've watched the NASA films of the astronauts walking on the Moon and wondered at their weird gate. Wait'll you see it speeded up. It looks exactly like they're running on Earth! They catch NASA in dozens of give aways that the photos and films had to have been faked. With our gov't it seems to be just one cover-up after another. $40 (#93)

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The *73* Flea Market, Barter 'n' Buy, costs you peanuts (almost) — comes to 35 cents a word for individual (noncommercial!) ads and $1.00 a word for commercial ads. Don't plan on telling a long story. Use abbreviations, cram it in. But be honest. There are plenty of hams who love to fix things, so if it doesn't work, say so.

Make your list, count the words, including your call, address and phone number. Include a check or your credit card number and expiration. If you're placing a commercial ad, include an additional phone number, separate from your ad.

This is a monthly magazine, not a daily newspaper, so figure a couple months before the action starts; then be prepared. If you get too many calls, you priced it low. If you don't get many calls, too high.

So get busy. Blow the dust off, check everything out, make sure it still works right and maybe you can help make a ham newcomer or retired old timer happy with that rig you're not using now. Or you might get busy on your computer and put together a list of small gear/parts to send to those interested?

Send your ads and payment to: *73 Magazine*, Barter 'n' Buy, 70 Hancock Rd., Peterborough NH 03458 and get set for the phone calls. The deadline for the December 2002 classified ad section is October 10, 2002.

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NEVER SAY DIE

continued from page 62

1982 to $19.2 billion today. And the results? Daily headlines and TV exposés of DEA scandals, drug busts gone terribly wrong, and more drugs than ever being available.

The biggest beneficiaries of this Congress-instigated corruption are the Mafia, drug gangs, and a few Colombian multi-billionaires. The easy money in this enormously profitable business keeps inner city kids from being interested in education or honest work. That's for suckers.

And who are the patsies paying for this big scam? The rest of us. 73

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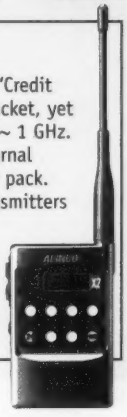

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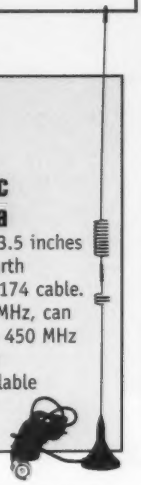

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